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KAYENNE

VIDEO PRODUCTION CENTER

Installation & Service Manual

Software Version 1.5.2

www.grassvalley.com

071868901
OCTOBER 2009

Affiliate with the N.V. KEMA in The Netherlands

CERTIFICATE

Certificate Number: 510040.001
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Including its implementation, meets the requirements of the standard:

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Scope:
The design, manufacture and support of video and audio hardware and software products and related systems.

This Certificate is valid until: June 14, 2012
This Certificate is valid as of: June 14, 2009
Certified for the first time: June 14, 2000

H. Pierre Sallé
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Grass Valley Web Site

The www.grassvalley.com web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Download software updates, drivers, and patches.

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END-OF-LIFE PRODUCT RECYCLING NOTICE

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.

For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.thomsongrassvalley.com/environment

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Preface

About This Manual

This *Kayenne Installation & Service Manual* is designed for technical personnel responsible for installing and maintaining Kayenne Video Production Center systems.

Standard Documentation Set

The standard Kayenne documentation set consists of a:

- *User Manual*,
- *Installation & Service Manual*,
- *Release Notes, and*
- *Release Notes Addendum*.

The *Kayenne User Manual* contains background information about the Kayenne Video Production Center, and describes operating procedures. This manual can be used while learning about Kayenne, and for enhancing your basic knowledge of the system.

The *Kayenne Installation & Service Manual* contains information about installing, configuring, and maintaining the system.

The *Kayenne Release Notes* contain information about new features and system enhancements for a specific software version, and also includes software installation procedures. Always check the release notes for your current system software before you begin operating your system.

The *Kayenne Release Notes Addendum* contains corrected and known issues about the system software.

Other Documentation

The *Switcher Products Protocols Manual* is available for developers and software engineers to use to design interfaces to the Kayenne system.

Safety Summary

Read and follow the important safety information below, noting especially those instructions related to risk of fire, electric shock or injury to persons. Additional specific warnings not listed here may be found throughout the manual.

WARNING Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Safety Terms and Symbols

Terms in This Manual

Safety-related statements may appear in this manual in the following form:

WARNING Warning statements identify conditions or practices that may result in personal injury or loss of life.

CAUTION Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

Terms on the Product

The following terms may appear on the product:

DANGER — A personal injury hazard is immediately accessible as you read the marking.

WARNING — A personal injury hazard exists but is not immediately accessible as you read the marking.

CAUTION — A hazard to property, product, and other equipment is present.

Symbols on the Product

The following symbols may appear on the product:

Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Indicates that user, operator or service technician should refer to product manual(s) for important operating, maintenance, or service instructions.

This is a prompt to note fuse rating when replacing fuse(s). The fuse referenced in the text must be replaced with one having the ratings indicated.

Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.

Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.

Indicates that static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Warnings

The following warning statements identify conditions or practices that can result in personal injury or loss of life:

Dangerous voltage or current may be present — Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

Do not service alone — Do not internally service this product unless another person capable of rendering first aid and resuscitation is present.

Remove jewelry — Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.

Avoid exposed circuitry — Do not touch exposed connections, components or circuitry when power is present.

Use proper power cord — Use only the power cord supplied or specified for this product.

Ground product — Connect the grounding conductor of the power cord to earth ground.

Operate only with covers and enclosure panels in place — Do not operate this product when covers or enclosure panels are removed.

Use correct fuse — Use only the fuse type and rating specified for this product.

Use only in dry environment — Do not operate in wet or damp conditions.

Use only in non-explosive environment — Do not operate this product in an explosive atmosphere.

High leakage current may be present — Earth connection of product is essential before connecting power.

Dual power supplies may be present — Be certain to plug each power supply cord into a separate branch circuit employing a separate service ground. Disconnect both power supply cords prior to servicing.

Double pole neutral fusing — Disconnect mains power prior to servicing.

Use proper lift points — Do not use door latches to lift or move equipment.

Avoid mechanical hazards — Allow all rotating devices to come to a stop before servicing.

Cautions

The following caution statements identify conditions or practices that can result in damage to equipment or other property:

Use correct power source — Do not operate this product from a power source that applies more than the voltage specified for the product.

Use correct voltage setting — If this product lacks auto-ranging power supplies, before applying power ensure that the each power supply is set to match the power source.

Provide proper ventilation — To prevent product overheating, provide equipment ventilation in accordance with installation instructions.

Use anti-static procedures — Static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Do not operate with suspected equipment failure — If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.

Ensure mains disconnect — If mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible. Verify that all mains power is disconnected before installing or removing power supplies and/or options.

Route cable properly — Route power cords and other cables so that they ar not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.

Use correct power supply cords — Power cords for this equipment, if provided, meet all North American electrical codes. Operation of this equipment at voltages exceeding 130 VAC requires power supply cords which comply with NEMA configurations. International power cords, if provided, have the approval of the country of use.

Use correct replacement battery — This product may contain batteries. To reduce the risk of explosion, check polarity and replace only with the same or equivalent type recommended by manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Troubleshoot only to board level — Circuit boards in this product are densely populated with surface mount technology (SMT) components and application specific integrated circuits (ASICS). As a result, circuit board repair at the component level is very difficult in the field, if not impossible. For warranty compliance, do not troubleshoot systems beyond the board level.

Sicherheit – Überblick

Lesen und befolgen Sie die wichtigen Sicherheitsinformationen dieses Abschnitts. Beachten Sie insbesondere die Anweisungen bezüglich Brand-, Stromschlag- und Verletzungsgefahren. Weitere spezifische, hier nicht aufgeführte Warnungen finden Sie im gesamten Handbuch.

WARNUNG **Alle Anweisungen in diesem Handbuch, die das Abnehmen der Geräteabdeckung oder des Gerätegehäuses erfordern, dürfen nur von qualifiziertem Servicepersonal ausgeführt werden. Um die Stromschlaggefahr zu verringern, führen Sie keine Wartungsarbeiten außer den in den Bedienungsanleitungen genannten Arbeiten aus, es sei denn, Sie besitzen die entsprechende Qualifikationen für diese Arbeiten.**

Sicherheit – Begriffe und Symbole

In diesem Handbuch verwendete Begriffe

Sicherheitsrelevante Hinweise können in diesem Handbuch in der folgenden Form auftauchen:

WARNUNG **Warnungen weisen auf Situationen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen.**

VORSICHT Vorsichtshinweise weisen auf Situationen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen oder zum zeitweisen Ausfall wichtiger Komponenten in der Arbeitsumgebung führen können.

Hinweise am Produkt

Die folgenden Hinweise können sich am Produkt befinden:

GEFAHR — Wenn Sie diesen Begriff lesen, besteht ein unmittelbares Verletzungsrisiko.

WARNUNG — Wenn Sie diesen Begriff lesen, besteht ein mittelbares Verletzungsrisiko.

VORSICHT — Es besteht ein Risiko für Objekte in der Umgebung, den Mixer selbst oder andere Ausrüstungskomponenten.

Symbole am Produkt

Die folgenden Symbole können sich am Produkt befinden:

Weist auf eine gefährliche Hochspannung im Gerätegehäuse hin, die stark genug sein kann, um eine Stromschlaggefahr darzustellen.

Weist darauf hin, dass der Benutzer, Bediener oder Servicetechniker wichtige Bedienungs-, Wartungs- oder Serviceanweisungen in den Produkthandbüchern lesen sollte.

Dies ist eine Aufforderung, beim Wechsel von Sicherungen auf deren Nennwert zu achten. Die im Text angegebene Sicherung muss durch eine Sicherung ersetzt werden, die die angegebenen Nennwerte besitzt.

Weist auf eine Schutzerdungsklemme hin, die mit dem Erdungskontakt verbunden werden muss, bevor weitere Ausrüstungskomponenten angeschlossen werden.

Weist auf eine externe Schutzerdungsklemme hin, die als Ergänzung zu einem internen Erdungskontakt an die Erde angeschlossen werden kann.

Weist darauf hin, dass es statisch empfindliche Komponenten gibt, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

Warnungen

Die folgenden Warnungen weisen auf Bedingungen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen:

Gefährliche Spannungen oder Ströme — Schalten Sie den Strom ab, und entfernen Sie ggf. die Batterie, bevor sie Schutzabdeckungen abnehmen, löten oder Komponenten austauschen.

Servicearbeiten nicht alleine ausführen — Führen Sie interne Servicearbeiten nur aus, wenn eine weitere Person anwesend ist, die erste Hilfe leisten und Wiederbelebungsmaßnahmen einleiten kann.

Schmuck abnehmen — Legen Sie vor Servicearbeiten Schmuck wie Ringe, Uhren und andere metallische Objekte ab.

Keine offen liegenden Leiter berühren — Berühren Sie bei eingeschalteter Stromzufuhr keine offen liegenden Leitungen, Komponenten oder Schaltungen.

Richtiges Netzkabel verwenden — Verwenden Sie nur das mitgelieferte Netzkabel oder ein Netzkabel, das den Spezifikationen für dieses Produkt entspricht.

Gerät erden — Schließen Sie den Erdleiter des Netzkabels an den Erdungskontakt an.

Gerät nur mit angebrachten Abdeckungen und Gehäuseseiten betreiben — Schalten Sie dieses Gerät nicht ein, wenn die Abdeckungen oder Gehäuseseiten entfernt wurden.

Richtige Sicherung verwenden — Verwenden Sie nur Sicherungen, deren Typ und Nennwert den Spezifikationen für dieses Produkt entsprechen.

Gerät nur in trockener Umgebung verwenden — Betreiben Sie das Gerät nicht in nassen oder feuchten Umgebungen.

Gerät nur verwenden, wenn keine Explosionsgefahr besteht — Verwenden Sie dieses Produkt nur in Umgebungen, in denen keinerlei Explosionsgefahr besteht.

Hohe Kriechströme — Das Gerät muss vor dem Einschalten unbedingt geerdet werden.

Doppelte Spannungsversorgung kann vorhanden sein — Schließen Sie die beiden Anschlußkabel an getrennte Stromkreise an. Vor Servicearbeiten sind beide Anschlußkabel vom Netz zu trennen.

Zweipolige, neutrale Sicherung — Schalten Sie den Netzstrom ab, bevor Sie mit den Servicearbeiten beginnen.

Fassen Sie das Gerät beim Transport richtig an — Halten Sie das Gerät beim Transport nicht an Türen oder anderen beweglichen Teilen fest.

Gefahr durch mechanische Teile — Warten Sie, bis der Lüfter vollständig zum Halt gekommen ist, bevor Sie mit den Servicearbeiten beginnen.

Vorsicht

Die folgenden Vorsichtshinweise weisen auf Bedingungen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen führen können:

Gerät nicht öffnen — Durch das unbefugte Öffnen wird die Garantie ungültig.

Richtige Spannungsquelle verwenden — Betreiben Sie das Gerät nicht an einer Spannungsquelle, die eine höhere Spannung liefert als in den Spezifikationen für dieses Produkt angegeben.

Gerät ausreichend belüften — Um eine Überhitzung des Geräts zu vermeiden, müssen die Ausrüstungskomponenten entsprechend den Installationsanweisungen belüftet werden. Legen Sie kein Papier unter das Gerät. Es könnte die Belüftung behindern. Platzieren Sie das Gerät auf einer ebenen Oberfläche.

Antistatische Vorkehrungen treffen — Es gibt statisch empfindliche Komponenten, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

CF-Karte nicht mit einem PC verwenden — Die CF-Karte ist speziell formatiert. Die auf der CF-Karte gespeicherte Software könnte gelöscht werden.

Gerät nicht bei eventuellem Ausrüstungsfehler betreiben — Wenn Sie einen Produktschaden oder Ausrüstungsfehler vermuten, lassen Sie die Komponente von einem qualifizierten Servicetechniker untersuchen.

Kabel richtig verlegen — Verlegen Sie Netzkabel und andere Kabel so, dass Sie nicht beschädigt werden. Stützen Sie schwere Kabelbündel ordnungsgemäß ab, damit die Anschlüsse nicht beschädigt werden.

Richtige Netzkabel verwenden — Wenn Netzkabel mitgeliefert wurden, erfüllen diese alle nationalen elektrischen Normen. Der Betrieb dieses Geräts mit Spannungen über 130 V AC erfordert Netzkabel, die NEMA-Konfigurationen entsprechen. Wenn internationale Netzkabel mitgeliefert wurden, sind diese für das Verwendungsland zugelassen.

Richtige Ersatzbatterie verwenden — Dieses Gerät enthält eine Batterie. Um die Explosionsgefahr zu verringern, prüfen Sie die Polarität und tauschen die Batterie nur gegen eine Batterie desselben Typs oder eines gleichwertigen, vom Hersteller empfohlenen Typs aus. Entsorgen Sie gebrauchte Batterien entsprechend den Anweisungen des Batterieherstellers.

Das Gerät enthält keine Teile, die vom Benutzer gewartet werden können. Wenden Sie sich bei Problemen bitte an den nächsten Händler.

Consignes de sécurité

Il est recommandé de lire, de bien comprendre et surtout de respecter les informations relatives à la sécurité qui sont exposées ci-après, notamment les consignes destinées à prévenir les risques d'incendie, les décharges électriques et les blessures aux personnes. Les avertissements complémentaires, qui ne sont pas nécessairement repris ci-dessous, mais présents dans toutes les sections du manuel, sont également à prendre en considération.

AVERTISSEMENT **Toutes les instructions présentes dans ce manuel qui concernent l'ouverture des capots ou des logements de cet équipement sont destinées exclusivement à des membres qualifiés du personnel de maintenance. Afin de diminuer les risques de décharges électriques, ne procédez à aucune intervention d'entretien autre que celles contenues dans le manuel de l'utilisateur, à moins que vous ne soyez habilité pour le faire.**

Consignes et symboles de sécurité

Termes utilisés dans ce manuel

Les consignes de sécurité présentées dans ce manuel peuvent apparaître sous les formes suivantes:

AVERTISSEMENT **Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales.**

ATTENTION Les mises en garde signalent des conditions ou des pratiques susceptibles d'occasionner un endommagement à l'équipement ou aux installations, ou de rendre l'équipement temporairement non opérationnel, ce qui peut porter préjudice à vos activités.

Signalétique apposée sur le produit

La signalétique suivante peut être apposée sur le produit:

DANGER — risque de danger imminent pour l'utilisateur.

AVERTISSEMENT — Risque de danger non imminent pour l'utilisateur.

MISE EN GARDE — Risque d'endommagement du produit, des installations ou des autres équipements.

Symboles apposés sur le produit

Les symboles suivants peut être apposés sur le produit:

Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.

Signale que l'utilisateur, l'opérateur ou le technicien de maintenance doit faire référence au(x) manuel(s) pour prendre connaissance des instructions d'utilisation, de maintenance ou d'entretien.

Il s'agit d'une invite à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.

Identifie une borne de protection de mise à la masse qui doit être raccordée correctement avant de procéder au raccordement des autres équipements.

Identifie une borne de protection de mise à la masse qui peut être connectée en tant que borne de mise à la masse supplémentaire.

Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

Avertissements

Les avertissements suivants signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales:

Présence possible de tensions ou de courants dangereux — Mettez hors tension, débranchez et retirez la pile (le cas échéant) avant de déposer les couvercles de protection, de défaire une soudure ou de remplacer des composants.

Ne procédez pas seul à une intervention d'entretien — Ne réalisez pas une intervention d'entretien interne sur ce produit si une personne n'est pas présente pour fournir les premiers soins en cas d'accident.

Retirez tous vos bijoux — Avant de procéder à une intervention d'entretien, retirez tous vos bijoux, notamment les bagues, la montre ou tout autre objet métallique.

Évitez tout contact avec les circuits exposés — Évitez tout contact avec les connexions, les composants ou les circuits exposés s'ils sont sous tension.

Utilisez le cordon d'alimentation approprié — Utilisez exclusivement le cordon d'alimentation fourni avec ce produit ou spécifié pour ce produit.

Raccordez le produit à la masse — Raccordez le conducteur de masse du cordon d'alimentation à la borne de masse de la prise secteur.

Utilisez le produit lorsque les couvercles et les capots sont en place — N'utilisez pas ce produit si les couvercles et les capots sont déposés.

Utilisez le bon fusible — Utilisez exclusivement un fusible du type et du calibre spécifiés pour ce produit.

Utilisez ce produit exclusivement dans un environnement sec — N'utilisez pas ce produit dans un environnement humide.

Utilisez ce produit exclusivement dans un environnement non explosible — N'utilisez pas ce produit dans un environnement dont l'atmosphère est explosible.

Présence possible de courants de fuite — Un raccordement à la masse est indispensable avant la mise sous tension.

Deux alimentations peuvent être présentes dans l'équipement — Assurez vous que chaque cordon d'alimentation est raccordé à des circuits de terre séparés. Débranchez les deux cordons d'alimentation avant toute intervention.

Fusion neutre bipolaire — Débranchez l'alimentation principale avant de procéder à une intervention d'entretien.

Utilisez les points de levage appropriés — Ne pas utiliser les verrous de la porte pour lever ou déplacer l'équipement.

Évitez les dangers mécaniques — Laissez le ventilateur s'arrêter avant de procéder à une intervention d'entretien.

Mises en garde

Les mises en garde suivantes signalent les conditions et les pratiques susceptibles d'occasionner des endommagements à l'équipement et aux installations:

N'ouvrez pas l'appareil — Toute ouverture prohibée de l'appareil aura pour effet d'annuler la garantie.

Utilisez la source d'alimentation adéquate — Ne branchez pas ce produit à une source d'alimentation qui utilise une tension supérieure à la tension nominale spécifiée pour ce produit.

Assurez une ventilation adéquate — Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation. Ne déposez aucun document sous l'appareil — ils peuvent gêner la ventilation. Placez l'appareil sur une surface plane.

Utilisez des procédures antistatiques - Les composants sensibles à l'électricité statique présents dans l'équipement sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

N'utilisez pas la carte CF avec un PC — La carte CF a été spécialement formatée. Le logiciel enregistré sur la carte CF risque d'être effacé.

N'utilisez pas l'équipement si un dysfonctionnement est suspecté — Si vous suspectez un dysfonctionnement du produit, faites inspecter celui-ci par un membre qualifié du personnel d'entretien.

Acheminez les câbles correctement — Acheminez les câbles d'alimentation et les autres câbles de manière à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.

Utilisez les cordons d'alimentation adéquats — Les cordons d'alimentation de cet équipement, s'ils sont fournis, satisfont aux exigences de toutes les réglementations régionales. L'utilisation de cet équipement à des tensions dépassant les 130 V en c.a. requiert des cordons d'alimentation qui satisfont aux exigences des configurations NEMA. Les cordons internationaux, s'ils sont fournis, ont reçu l'approbation du pays dans lequel l'équipement est utilisé.

Utilisez une pile de remplacement adéquate — Ce produit renferme une pile. Pour réduire le risque d'explosion, vérifiez la polarité et ne remplacez la pile que par une pile du même type, recommandée par le fabricant. Mettez les piles usagées au rebut conformément aux instructions du fabricant des piles.

Cette unité ne contient aucune partie qui peut faire l'objet d'un entretien par l'utilisateur. Si un problème survient, veuillez contacter votre distributeur local.

Regulatory Notices

Certifications and Compliances

FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley Group can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

EN55022 Class A Warning

For products that comply with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

Canadian Certified AC Adapter

Canadian approval includes the AC adapters appropriate for use in the North America power network. All other AC adapters supplied are approved for the country of use.

FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may no cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Certification

This product has been evaluated for Electromagnetic Compatibility under the EN 55103-1/2 standards for Emissions and Immunity and meets the requirements for E4 environment.

This product complies with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This product has been evaluated and meets the following Safety Certification Standards:

Category	Standard	Designed/tested for compliance with:
Safety	ANSI / UL60950	"Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements", (ANSI/UL 60950-1, First Edition, Dated April 1, 2003, with revision through and including November 26, 2003.)
	IEC 60950	"Standard for Safety for Information Technology Equipment - Safety - Part 1: General Requirements", (IEC 60950-1, First Edition, 2001, Corrigendum 1:10-2002)
	CAN/CSA C22.2, No. 60950	"Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements", (CAN/CSA-C22.2 No. 60950-1-03. First Edition Dated April 1, 2003, with revisions through and including November 26, 2003)
	EN60950	Safety of Information Technology Equipment, including Electrical Business Equipment.
	73/23/EEC	Low Voltage Directive

Category	Standard	Designed/tested for compliance with:
EMI	EMC Directive 2004/108/EC via EN 55103-1 and 2	Audio, Video and Entertainment Lighting Control for the European Community.
	EN 55103-1 standards	Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1 Emissions, Environment E4 EN 55022: Class A Radiated Emissions EN 61000-3-2: Powerline Harmonic Emissions EN 61000-3-3: Voltage Fluctuations “Flicker” EN 55022: Class A Conducted Emissions Radiated Magnetic Field Emissions Peak Inrush Current
	EN55103-2 standards	Electromagnetic compatibility--Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2 Immunity, Environment E4 EN 61000-4-3: Radiated RF Immunity EN 61000-4-2: Electrostatic Discharge “ESD” EN 61000-4-4: Electrical Fast Transients “EFT” EN 61000-4-11: Voltage Dips & Fluctuations EN 61000-4-5: Power Line Surge EN 61000-4-6: Conducted RF Immunity Radiated Magnetic Field Immunity
	US FCC Class A	CISPR Pub. 22 (1985)
	Canada FCC Industry Canada	ICES-003
	Australia & New Zealand:	AS/NZS 3548

Section 1

Introduction

Note For reader convenience this identical Section 1 is included at the beginning of each Kayenne manual. If you are already familiar with this material you can skip to the next section.

Overview

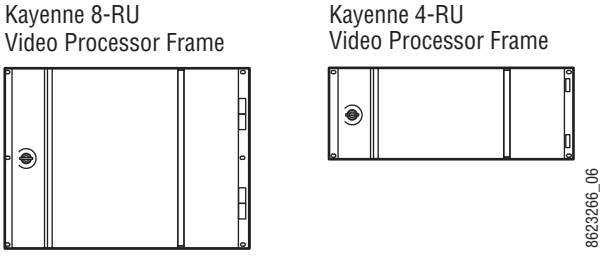
The Grass Valley Kayenne family of multi-format digital production switchers provides powerful, ground-breaking features designed to meet the widest range of requirements for live studio, mobile, and post-production applications. Available in configurations ranging from 1.5-ME to 4.5-MEs, Kayenne systems combine features and functionality available in the current Grass Valley Kalypso, KayakHD, and XtenDD switchers along with additional capabilities previously unavailable in any video production switcher from any manufacturer.

A wide variety of possible Kayenne system configurations exist to meet different customer requirements.

Kayenne Video Processor Frames

The Kayenne Video Processor Frame is available in two sizes. The 8-RU full size frame supports up to 4.5 ME systems. The 4-RU compact frame supports 1.5-ME through 2.5-ME Kayenne systems (Figure 1). The number of licensed boards present in the Kayenne frame determines the number of MEs available, as well as the number of video inputs, outputs, GPIOs and Relay Tallies.

Figure 1. Kayenne Video Processor Frames



Kayenne Control Surfaces

A Kayenne control surface typically consists of a Control Panel, a Menu Panel with an included articulated support arm, a Panel Control Unit (PCU) frame, and optional Satellite Panels. This control surface has an innovative modular design. Representative Kayenne control surfaces are shown in the following illustrations.

Figure 2. Kayenne 4-ME 35 Control Surface

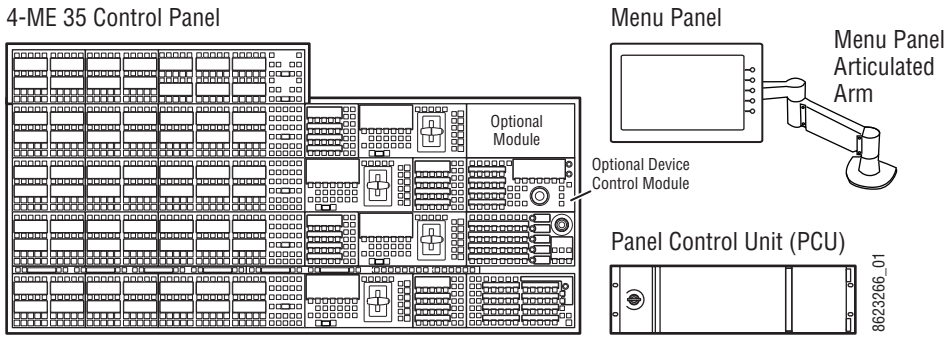


Figure 3. Kayenne 3-ME 35 Control Surface

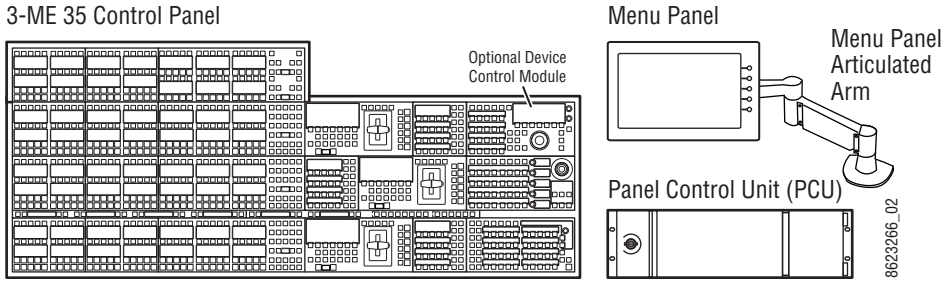


Figure 4. Kayenne 2-ME 25 Control Surface

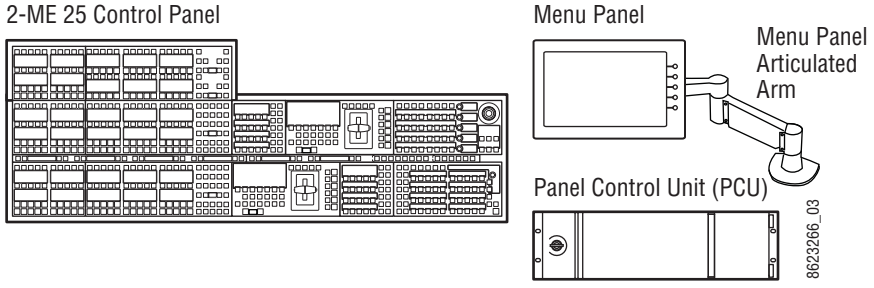
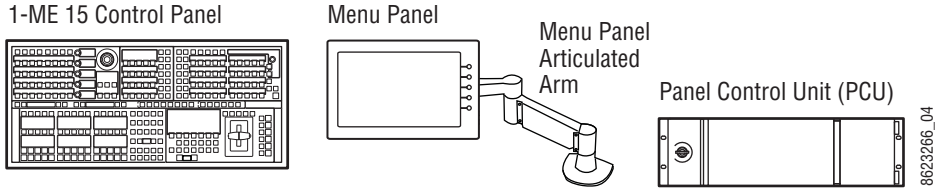


Figure 5. Kayenne 1-ME 15 Control Surface



The modular design and use of a separate PCU supports the hot-replacement of individual Control Panel components, if necessary, while the rest of the system remains operational.

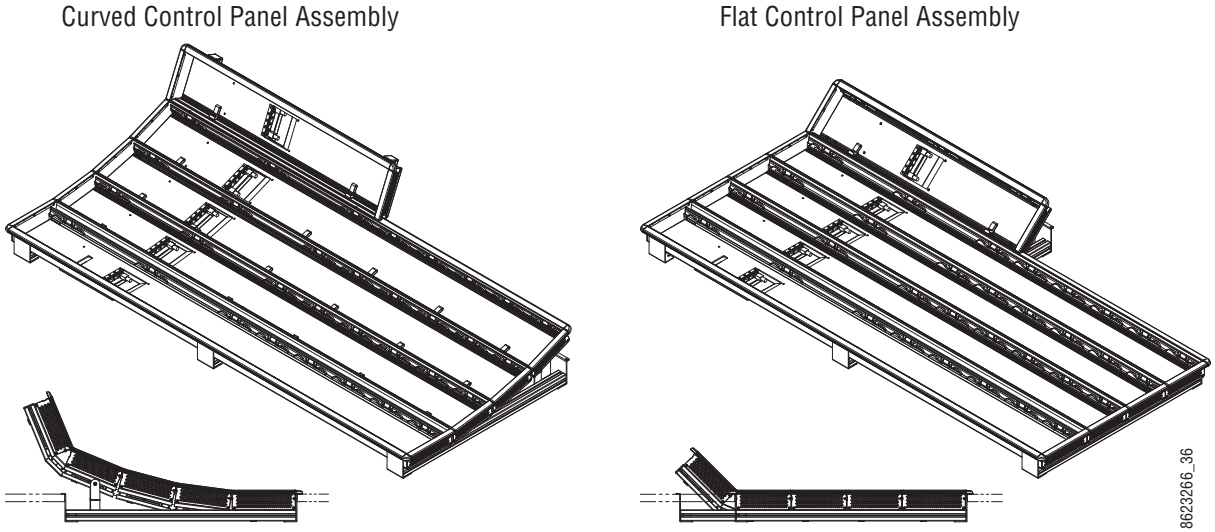
Multiple Suites and Control Surfaces

A Kayenne system can be subdivided into two suites, if desired, each of which can have two control surfaces. Hardware resources in the Video Processor Frame can be assigned to an individual suite during configuration, essentially creating two separate switchers from one Kayenne system. A Kayenne PCU can support two control surfaces using its eight available ports.

Flat or Curved Control Panel Orientation

The main Kayenne Control Panel supports different physical orientations. Besides a conventional flat surface, a special support design permits a curved working surface, where the MEs progressively tilt for improved ergonomics (Figure 6).

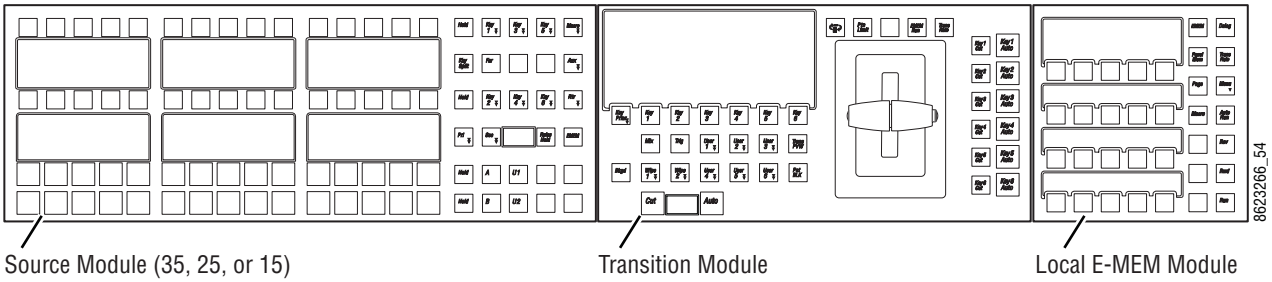
Figure 6. Curved and Flat Control Surface Installations



Control Panel Stripes

The main Kayenne Control Panel is organized into from one to five Stripes. Each Stripe consists of a tray and its complement of drop-in modules. An ME Stripe has a module for Source Selection, Transition, and individual E-MEM control (Figure 7). Additional Master E-MEM, Machine Control, Multi-Function, and Local Aux modules are populated to complete the control surface functionality.

Figure 7. Portion of Control Panel ME Stripe



Control Panel Modules

The following Kayenne modules are available:

- KAYN-PNL-TRM - Transition Module
- KAYN-PNL-LEM - Local E-MEM Module
- KAYN-PNL-MEM - Master E-MEM Module
- KAYN-PNL-MFM - Multi-Function Module
- KAYN-PNL-SRC-35, 25, 15 - Source Module, available in 35, 25, and 15 button widths.

Note 15 button widths are only available with 1-ME Control Panels.

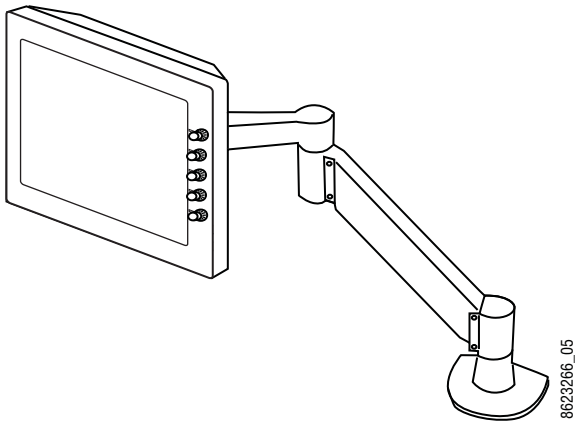
- KAYN-PNL-AUX-35, 25 - Local Aux Module, available in 35 and 25 button widths.
- KAYN-PNL-BAR-35, 15 - System Bar, available in two sizes to match various Control Panel widths.
- KAYN-PNL-DCM - Device Control Module, available as an option for 3 and 4-ME panels and as a satellite panel module.

Touch Screen Menu Panel and PC Menu Control

Each Kayenne control surface includes a Menu Panel that features a wide format 15 in. touch screen display. An articulated arm is also included, offering a wide variety of installation options (Figure 8). The Menu Panel has a standard VESA-75 hole pattern and M4 threads, compatible with this and many other mounting devices.

The Menu Panel has four USB ports, two on the right side edge of the panel and two on the back for keyboard and mouse (wired or wireless are supported).

Figure 8. Menu Panel with Articulated Arm



An additional touch screen Kayenne Menu Panel is available as an option (additional Menu Controller Board is required in the PCU).

It is also possible to run the Kayenne Menu application on a standard PC, permitting mouse and keyboard control from a laptop, or remote control from any location on the network.

Panel Control Unit

The Kayenne Control Panel and Menu Panel(s) are powered from a separate rack mount Panel Control Unit (PCU). Control surface processing and communications are handled by this unit. The PCU eliminates the need for cooling fans in the Control Panel and Menu Panels, making for quiet system operation.

Redundant Power Supplies

Optional built-in redundant power supplies are available for the Kayenne 4-RU and 8-RU Frames. An additional redundant power supply is standard with the Kayenne PCU.

Supported Control Protocols

All Kayenne systems support the following control interfaces and types of external devices:

- Serial control of VTR/DDR (BVW, AMP, and Odetics protocols),
- Ethernet control of DDR channels (AMP protocol),
- Peripheral Bus II protocol,
- Tally (Contact Closure and Serial),
- GPI Inputs and Outputs,
- Routing Control Systems (Jupiter, Encore, SMS-7000, and third party routers), and
- Grass Valley Editor protocol.

Section 2

Installation Preparation

Pre-Installation Procedures

Before you physically install the Kayenne system, familiarize yourself with the tools required, physical specifications, and safety and power requirements covered in this section.

System Survey

Check all parts received against the packing list enclosed with your shipment, and examine the equipment for any shipping damage. Immediately report any missing or damaged items to the carrier and to your Grass Valley service representative.

Line Voltage

Kayenne components utilize auto-ranging power supplies which accommodate 100 - 240V. No switch settings are required, nor are any possible.

Required Tools

Hex tools for assembly of the Control Panel Support and the Menu Panel articulated arm are provided.

The following tools required for installation are not supplied:

- #2 Philips cross head screwdriver (for Control Panel brackets)
- Medium flat blade screwdriver, (for PCU-Stripe cable connections)
- Crescent wrench, or pliers (for tie wrap holders)
- Rubber mallet, or hammer and wood block (for support end caps)

Safety Requirements

To prevent injury or equipment damage, read, understand, and follow all installation safety precautions.

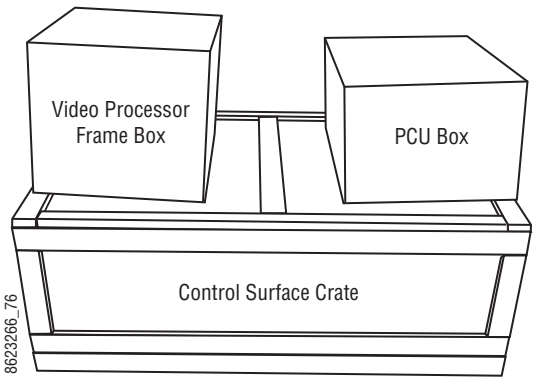
CAUTION Larger Kayenne system components range from approximately 58 kg (128 lbs.) to 16 kg 35 (lbs.) in weight. Provide appropriate equipment to support the frame during installation.

WARNING **Electrical potential is still applied to some internal components even when power to the frame is off. To prevent electrical shock when working on this equipment, disconnect the AC line cords from the AC source before working on any internal components. Residual voltage may be present immediately after unplugging the system; wait thirty seconds to allow capacitors to discharge before working on the system.**

CAUTION To avoid static damage to sensitive electronic devices, protect the Kayenne system components from static discharge. Avoid handling frame boards in a high static environment. Use a grounding strap when handling boards, and touch the frame before you remove any boards.

Equipment Unpacking

Overview



Kayenne systems with larger Control Panels typically ship using a wood Control Surface crate with boxes for the Video Processor Frame and PCU strapped on top.

The Control Surface crate is equipped with a shock sensor and a tilt sensor that monitors treatment encountered during shipment. Note the general condition of the boxes and the state of the sensors before unpacking your Kayenne system.

It is recommended the shipping boxes, crate, and all packing material be saved for possible reuse in the future.

Shipping Boxes

Video Processor Frame Shipment Packaging

The 8-RU and 4-RU Video Processor Frames ship in different sized boxes. The 8-RU Frame is packaged horizontally (same orientation as when rack mounted) while the 4-RU Frame is packaged vertically. Each Frame ships with a rear rack support and geographically appropriate power cables. If an optional redundant power supply was ordered, it ships installed in the Frame.

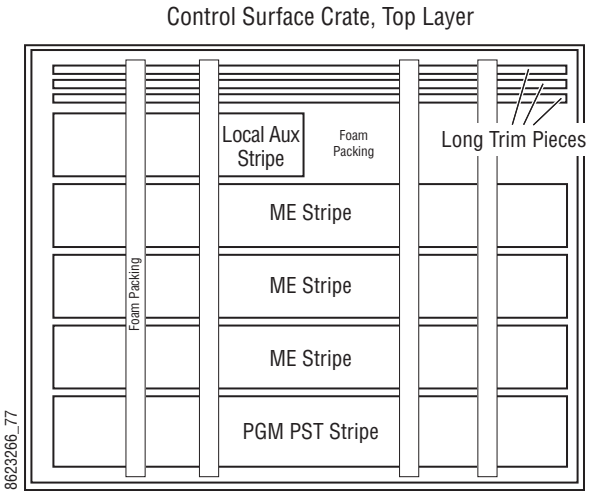
Panel Control Unit (PCU) Shipment Packaging

The PCU Frame is packaged vertically for shipment. Each PCU ships with geographically appropriate power cables. The PCU Frame box also includes:

Table 1. PCU Box Additional Contents

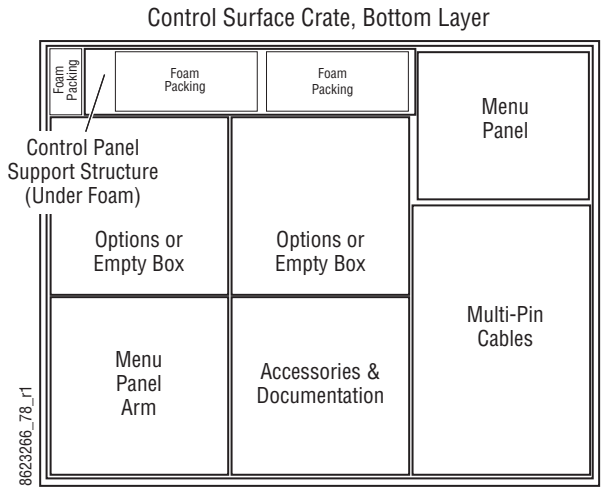
Windows OS Software CDs
Menu Panel Hard Drive Recovery USB stick
Rear rack support

Control Surface Shipment Packaging



The Control Surface Crate is packed in two layers. The top layer has the Kayenne Control Panel Stripes, populated with modules, secured for shipment with foam packing material. The Stripes are packaged in anti-static bags. Long Control Panel trim pieces rest in slots cut in the foam. The number of Stripes, modules, and trim pieces vary, depending on the model of Control Panel ordered.

Visually inspect the Stripes and packing material before removal. Carefully lift out and store the Stripes and trim pieces, then remove the foam layer to access the remaining materials.



The bottom Control Surface Crate layer has several boxes filled with various components, and empty boxes, as needed, acting as spacers for shipment.

The **Control Panel Support Structure Box** contains the parts used to assemble either a curved or flat Control Panel Support structure. The parts included will be suitable for the size of Control Panel ordered.

The **Menu Panel Box** contains the Menu Panel assembly, excluding support structure and cables.

The **Menu Panel Arm Box** contains the articulated arm used with the Menu Panel, related hardware and arm assembly instructions.

The **Multi-Pin Cables Box** contains the PCU Stripe and Control Panel multi-pin cables. The label on the box indicates the number of cables included.

The **Accessories Box**(es) contains the following items:

Table 2. Accessories Box Shipping Contents

System Bar removal tool	Warranty cards
Dimpled blank keycaps, large and small	USB stick containing Kayenne System Software
Control Panel trim side and corner pieces	Kayenne Documentation CD
GPI/Tally connector kits	Kayenne Manuals
Module removal cards	
Blank modules (if required)	

Bench Test (Optional)

It is wise to do a preliminary test before installing system components at their final locations. It is easier to diagnose and correct problems if the components are in close proximity. This bench test ensures that major components power up, communicate with one another, generate video signals, and pass video from an input to an output.

This procedure tests the Kayenne Video Processor Frame, one ME Control Panel Stripe with multi-pin cable, a Kayenne Menu Panel with multi-pin cable, and the PCU Frame.

It is assumed the Kayenne system being tested has factory default settings. Default IP addresses assigned at the factory allow the system to operate in an isolated network environment.

Materials Required

To perform this bench test the following additional materials are required:

- HD Serial digital signal source (signal generator or video source),
- House reference Tri-Level Sync signal,
- HD Serial digital picture monitor,
- Three 75 Ω video cables and a 75 Ω terminator,
- Two Ethernet Category 5 cables.

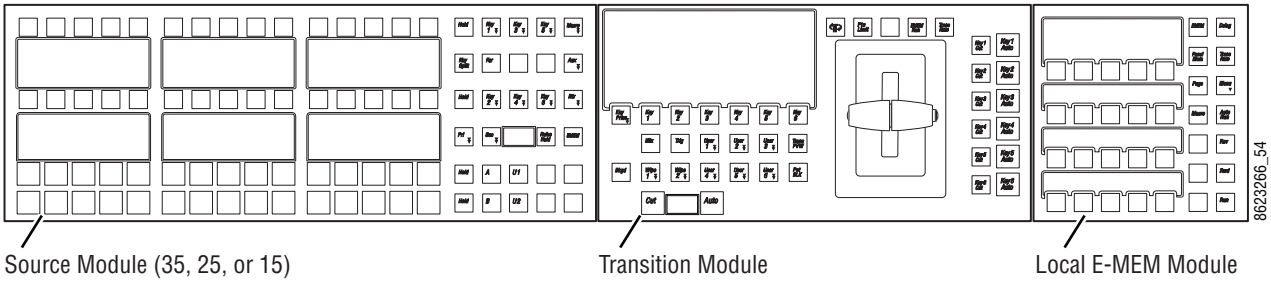
Note Known good condition Category 5 cables must be used. Using second-hand cables with an unknown history will compromise test validity.

Bench Test Procedure

Note This test uses Kayenne default IP addresses and should be performed in isolation from any existing facility LAN.

1. Unpack the Video Processor Frame, PCU Frame, Menu Panel, and one ME Stripe. Ensure all fan vents are fully exposed and all units are disconnected from any power sources.
2. Ensure all the boards and power supplies in the front bay of the Video Processor Frame are properly seated.
3. Ensure the boards and power supplies in the PCU Frame are properly seated.
4. Ensure the ME Stripe has the Source Select, Transition, and Local EMEM modules installed (Figure 9).

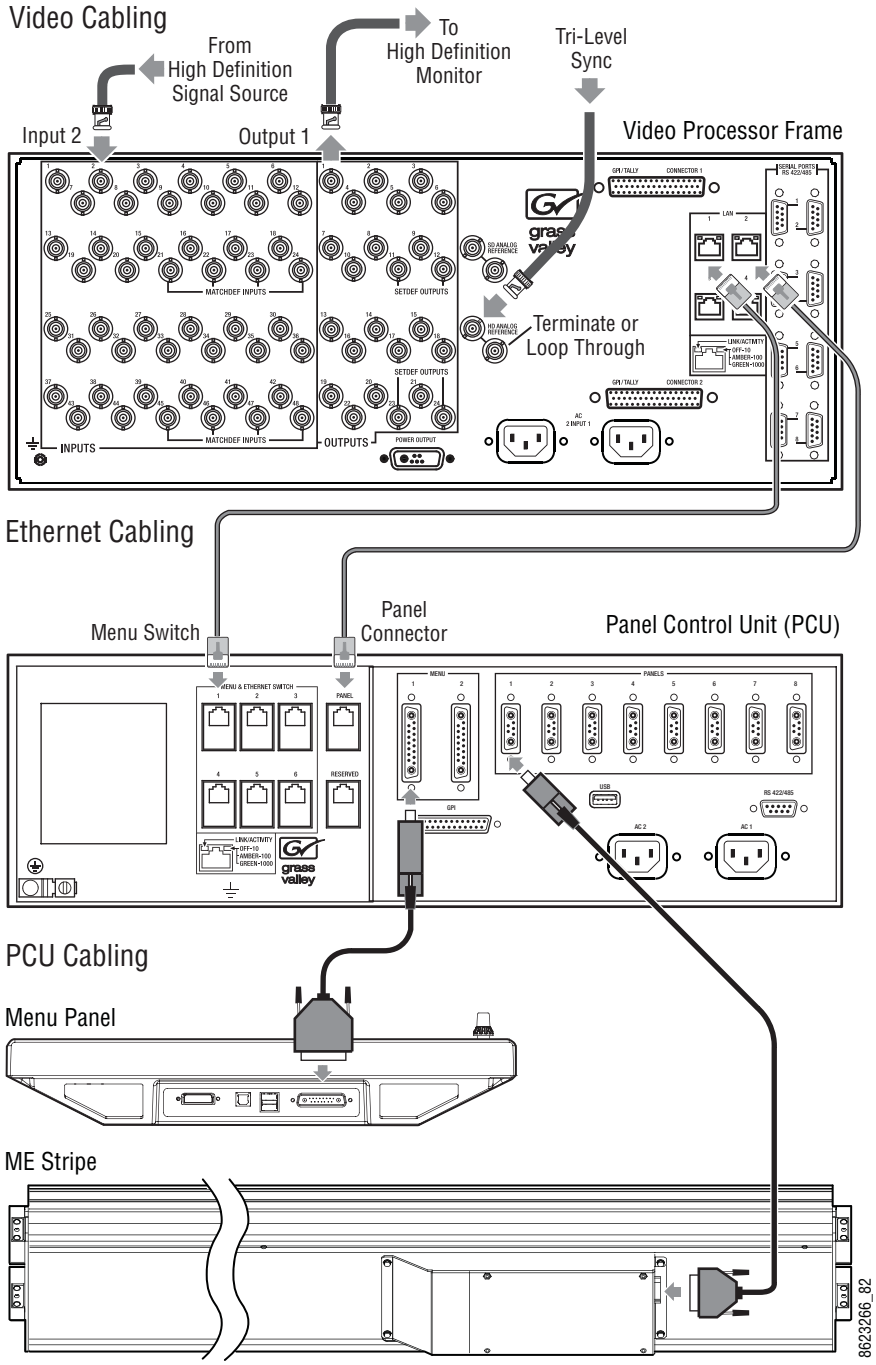
Figure 9. Portion of Control Panel ME Stripe



5. Connect two Cat 5 straight-through Ethernet cables from two LAN ports on the Video Processor Frame to the PCU Frame (see Figure 10):
   - Connect one Ethernet cable to a **Menu & Ethernet Switch** port.
   - Connect the other Ethernet cable to the **Panel** port.

6. Connect he following video signal cables to the rear of the Video Processor Frame (Figure 10):
   - Connect an HD capable serial digital monitor to Output #1 at the rear of the Video Processor Frame. By default this is the PGM PST bank Program A output.
   - Connect a known good HD serial digital video source to Input #2 on the rear of the Video Processor Frame. By default this input maps to the second source selection button.
   - Connect a tri-level sync reference signal to **HD Analog Reference** and loop through or terminate the adjacent connector.
7. For this test the Menu Panel can be placed on its back temporarily, with the touch screen surface facing up. For ventilation place the Menu Panel on wooden blocks to raise it off the bench surface.
8. With power disabled on the PCU, connect a larger multi-pin cable between the **Menu 1** connector and the Menu Panel, and a smaller multi-pin cable between the **Panels 1** connector and the ME Stripe (Figure 10).

Figure 10. Kayenne Bench Test Cabling

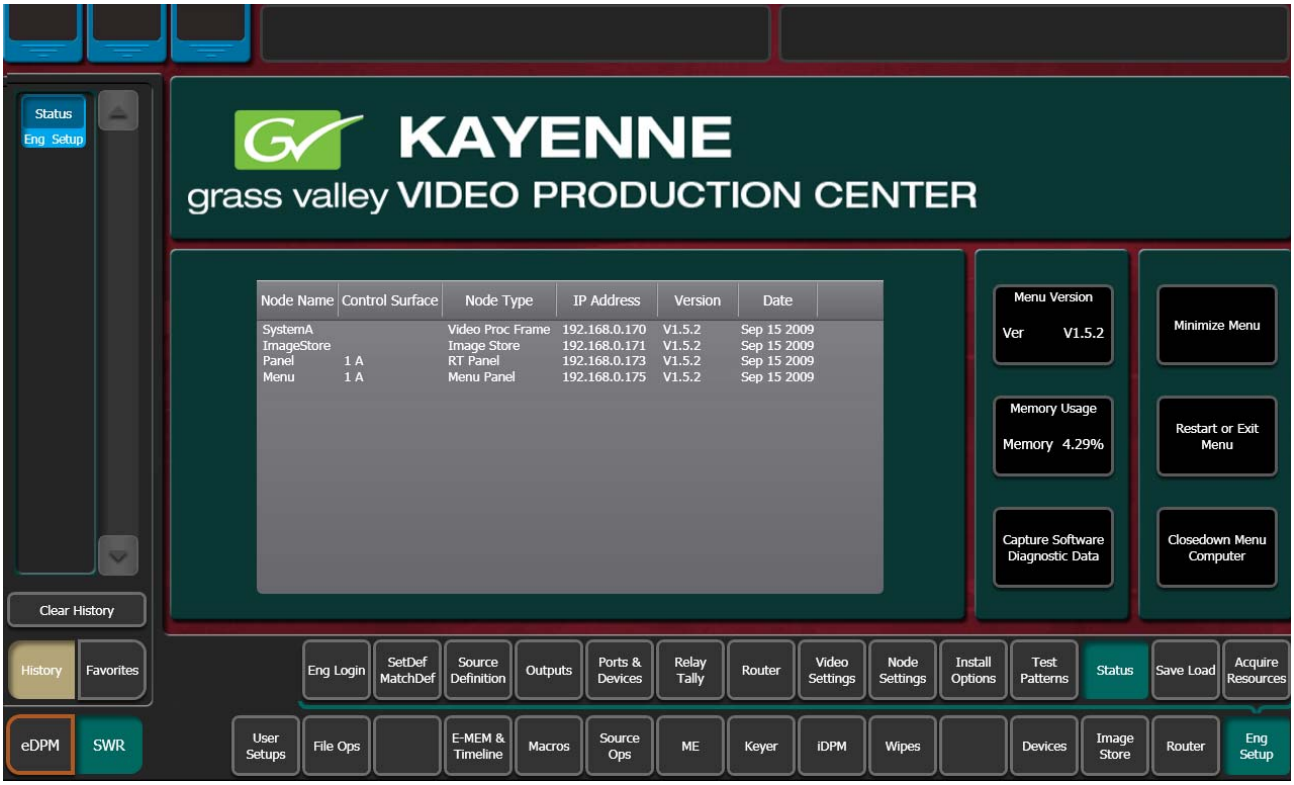


9. Open the front door of the Video Processor Frame and the PCU Frame and turn on the power switches (see page 101 or page 105, and page 109). Confirm power indicators on the power supplies illuminate and the fans spin.

10. The ME Stripe and Menu Panel receive power from the PCU. Ensure these devices power up along with the PCU.

11. The Menu panel should now display the Kayenne Status Menu with devices listed (Figure 11). This confirms the Menu Panel is running the Kayenne software and system communications has been established.

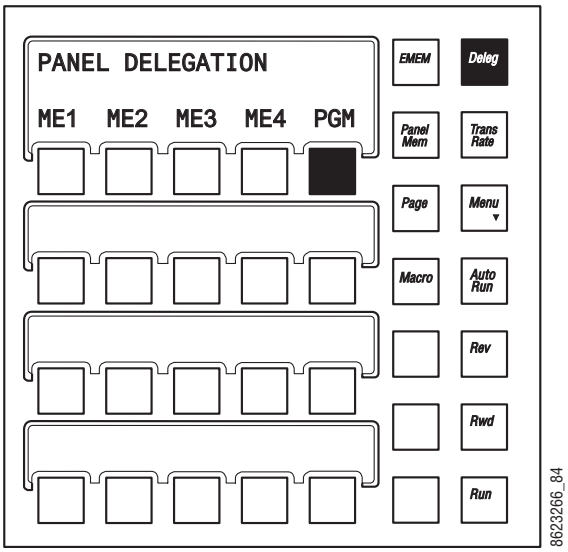
Figure 11. Kayenne Status Menu



Note If a **No Comm** message appears on any device, a LAN problem probably exists. Confirm default IP addresses are being used, and check the LAN cable connections.

12. On the Local EMEM Module, press the **Deleg** button, and then press the **PGM** button to delegate the ME Stripe to PGM PST (Figure 12). The ME Stripe will display PGM in its display window on the right (Figure 13 on page 46).

Figure 12. Delegate Stripe to PGM PST

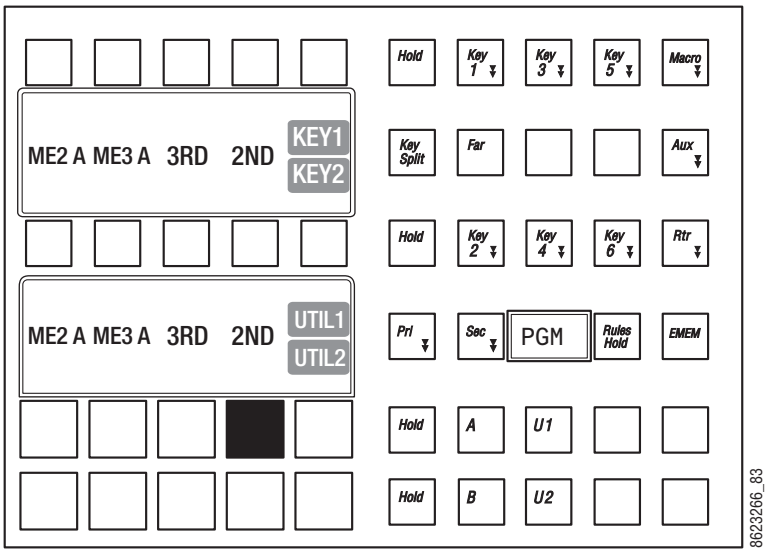


13. Move the transition lever arms on the ME to either limit (all the way up or down).

14. The Kayenne system should have come up with the left most source selection button illuminated, which by default is black. If it is not selected, do so now. Black should appear on the monitor.

15. Hold down the **2ND** shift button for the PGM PST A Bus (Figure 13), and press the left most source select button. This shifted source selection is by default a test signal, which should appear on the monitor. This confirms the system is generating and outputting video.

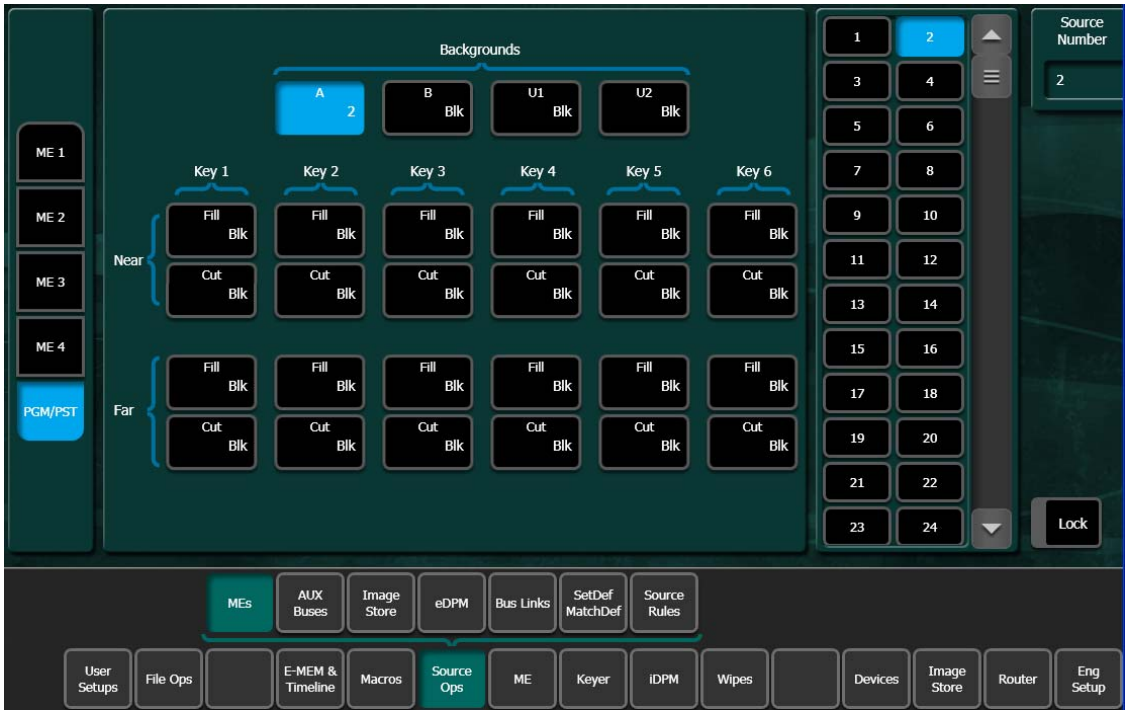
Figure 13. PGM PST Shift Button Location (Black)



16. Press the second to the left button on the A bus of the PGM PST bank (by default this button is labeled **2**). You should see the source you connected to the Input #2 connector on your monitor. This confirms the system passes video from input to output.

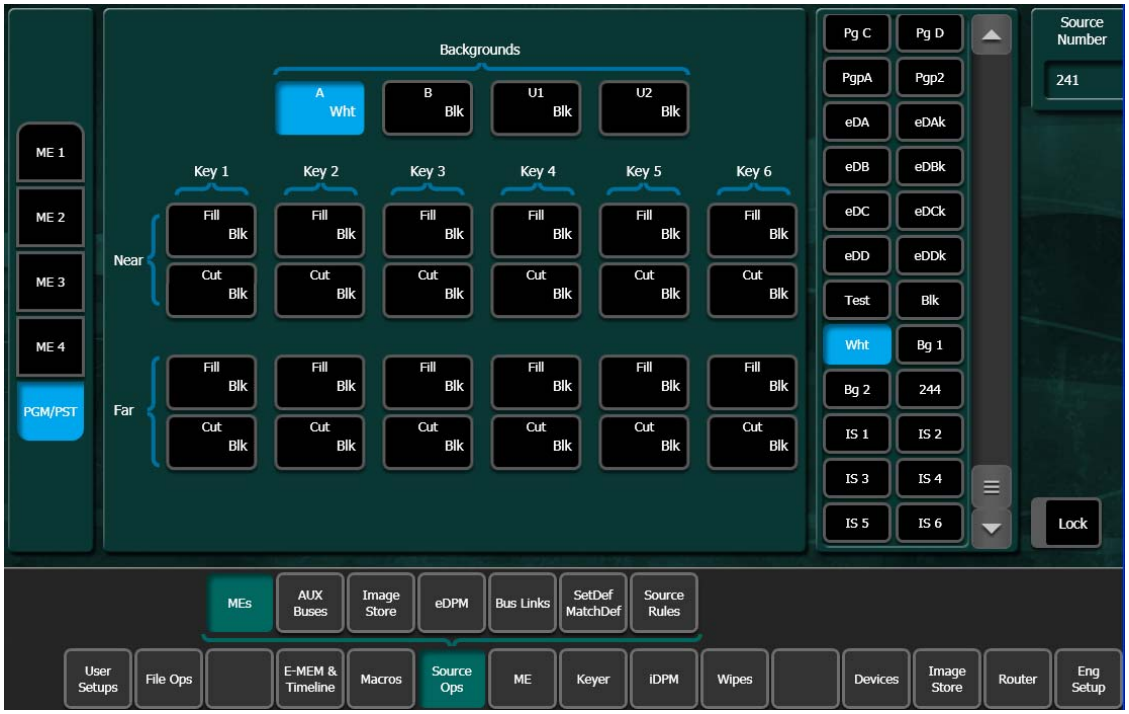
17. On the Menu Panel, touch **Source Ops**, **MEs**, and select **PGM/PST** Backgrounds **A**. The menu report the currently selected sources on the buttons in the center, and shows the source for the selected button on the scrolling list on the right (Figure 14).

Figure 14. Source Ops Menu, PGM/PST Background A



18. Scroll down to the bottom of the list on the right and touch **Wht** (Figure 15). The monitor will then show an internally generated white video signal. This confirms the Kayenne Menu Panel is operational.

Figure 15. Source Ops Menu, White Signal Selected



This concludes the bench test. If you encountered any problems contact Grass Valley Customer Service to resolve the issue before you proceed with your actual system installation.

Bench Ethernet Configuration

With the Kayenne system powered up and operational using default settings, now is a good time to re-configure your Ethernet settings if this is necessary for your facility. After re-configuration, you will be able to connect the Kayenne system to your facility network and confirm the settings are compatible. See *Network Configuration* *on page 140* for more information.

Installation Tasks Overview

After pre-installation procedures and equipment unpacking, the installation tasks listed below will need to be completed. Details of installation, cabling, and system configuration are covered in later sections of this manual.

1. Assemble and install the Kayenne Control Panel support structure.
   a. Connect a multi-pin cable to each Control Panel Stripe.
   b. Attach the Control Panel Stripes to the support structure.
   c. Install the Control Panel into its desktop cutout.
2. Assemble and Install the Kayenne Menu Panel and support.
   a. Install the Menu Panel articulated arm (if used) to a mounting surface.
   b. Attach the Kayenne Menu Panel to the articulated arm and adjust balance.
3. Install the Kayenne Frames.
   a. Install the Kayenne Video Processor Frame into your equipment rack.
   b. Install the Kayenne PCU into your equipment rack.
4. Connect system cabling.
   a. Connect network and multi-pin cables to the Kayenne system devices.
   b. Configure network IP settings.
   c. Connect video cables to the Video Processor Frame input, output, and reference connectors.

d. Connect power cables to the Video Processor and PCU Frames.

5. Analyze and, if necessary, adjust the timing of video sources connected to the Kayenne system.

Section 3

Control Surface Installation

Overview

A typical Kayenne control surface has a modular Control Panel, a Menu Panel, and is driven by a Panel Control Unit (PCU) frame. Additional Menu Panels and Satellite Panels are available as options.

A Control Panel consists of system operation modules, which mount into trays, which are in turn held in place by a Control Panel support structure. One Control Panel tray filled with modules is called a Stripe. Various numbers and types of modules and trays can be combined to create a wide variety of control surface functionality.

The Control Panel and Menu Panel's processing electronics are located in the PCU. The Stripes and Menu Panels are connected to the PCU via multi-pin cables that carry power and communication signals.

Kayenne Control Panels ship to the customer as boxed Stripes, which are assembled with the support structure on site. You will need to know what Control Panel configuration(s) you intend to use at your facility in order to plan your installation effectively.

The Kayenne Control Panel support kit uses 30mm series components sourced from Bosch Rexroth.

Control Panel Assembly

Support Structure Assembly Required

CAUTION Assembly of the Control Panel support structure is nontrivial. Do not attempt assembly without first reading entirely through the detailed instructions in this section.

If you purchased commissioning with your Kayenne system, assembly of the Control Panel support is included as part of the commissioning.

If you did not purchase commissioning, but would like to reconsider the option, contact Grass Valley Customer Support.

Control Panel Variations

Seven basic Control Panel assemblies are considered standard: 4-ME 35, 4-ME 25, 3-ME 35, 3-ME 25, 2-ME 35, 2-ME 25, and 1-ME 15. Each assembly name identifies the number of MEs present and the number of source selector buttons in each ME.

Two Control Panel Assembly orientations are possible, flat and curved. The curved panel provides improved operator ergonomics. This orientation raises the Control Panel height, so visibility of a monitor wall should be considered prior to installation. An assembled Control Panel can be operated from a tabletop, or it can be installed into a cutout.

The Local Aux Stripe can be connected to the Control Panel support structure at a 45 degree angle, or it can be mounted separately in its own backsplash cutout.

The following diagrams show some standard Control Panel assemblies. It is also possible to create different Control Panel assemblies (for example, a 2-ME 35), since the parts are interchangeable. Specific information for non-standard configurations is not included in this document.

Control Panel Cooling

The Kayenne Control Panel is externally powered and does not have internal cooling fans. Electronics in the panel are convection cooled and require free air movement. Do not install the panel into a sealed space.

CAUTION If the panel is mounted in a counter-top, do not enclose the lower portion of the cutout. Leave the bottom open to allow passive air movement.

Truck and High Vibration Environment Considerations

The Kayenne Control Panel has several bolt and screw tightened components. In high vibration environments these attachments could loosen over time. Loctite Blue 242 or equivalent thread locking compound is recommended for these environments. This compound is designed to lock threaded components together during assembly, but permits them to be loosened if necessary later using hand tools.

During Control Panel assembly, apply a drop of the locking compound to the ends of the threads of the support beam bolts, to the screws connecting the cutout lip brackets to the support beams, and to the bolts attaching the trays to the support beams. Make sure the locking compound is present where the thread interfaces to each bolt or beam.

4-ME 35 Control Panel, Curved Assembly

Note Read through the entire procedure before you begin actual assembly.

Figure 16. 4-ME 35 Control Panel Dimensions, Curved Installation

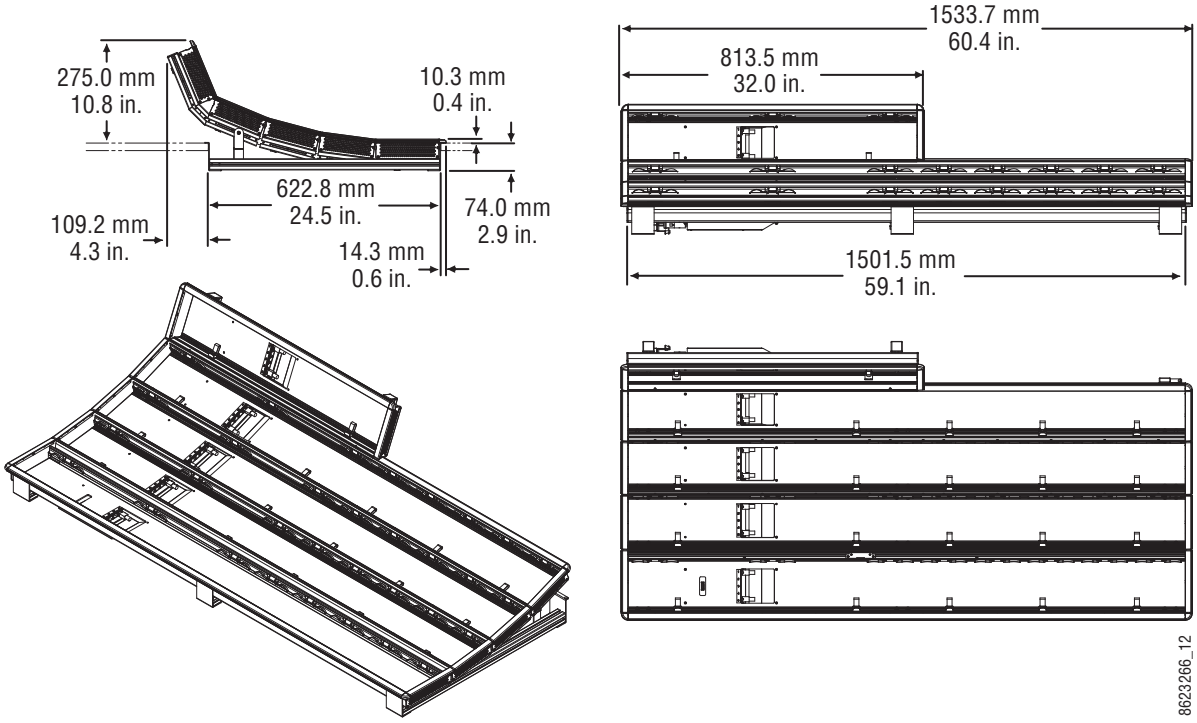


Figure 17. 4-ME Control Panel Cutout Dimensions, Curved Installation

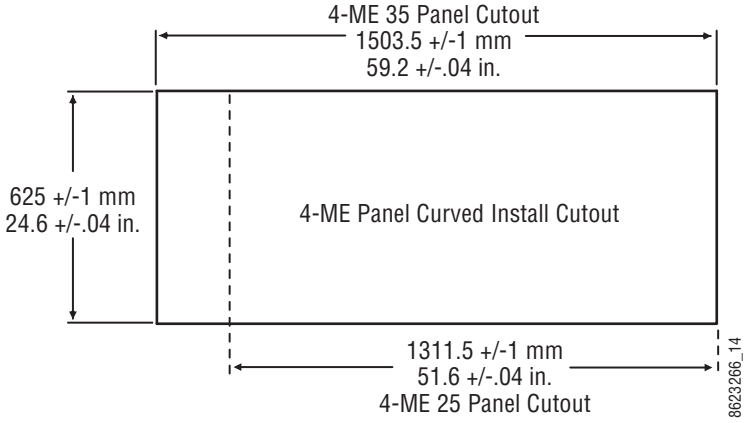
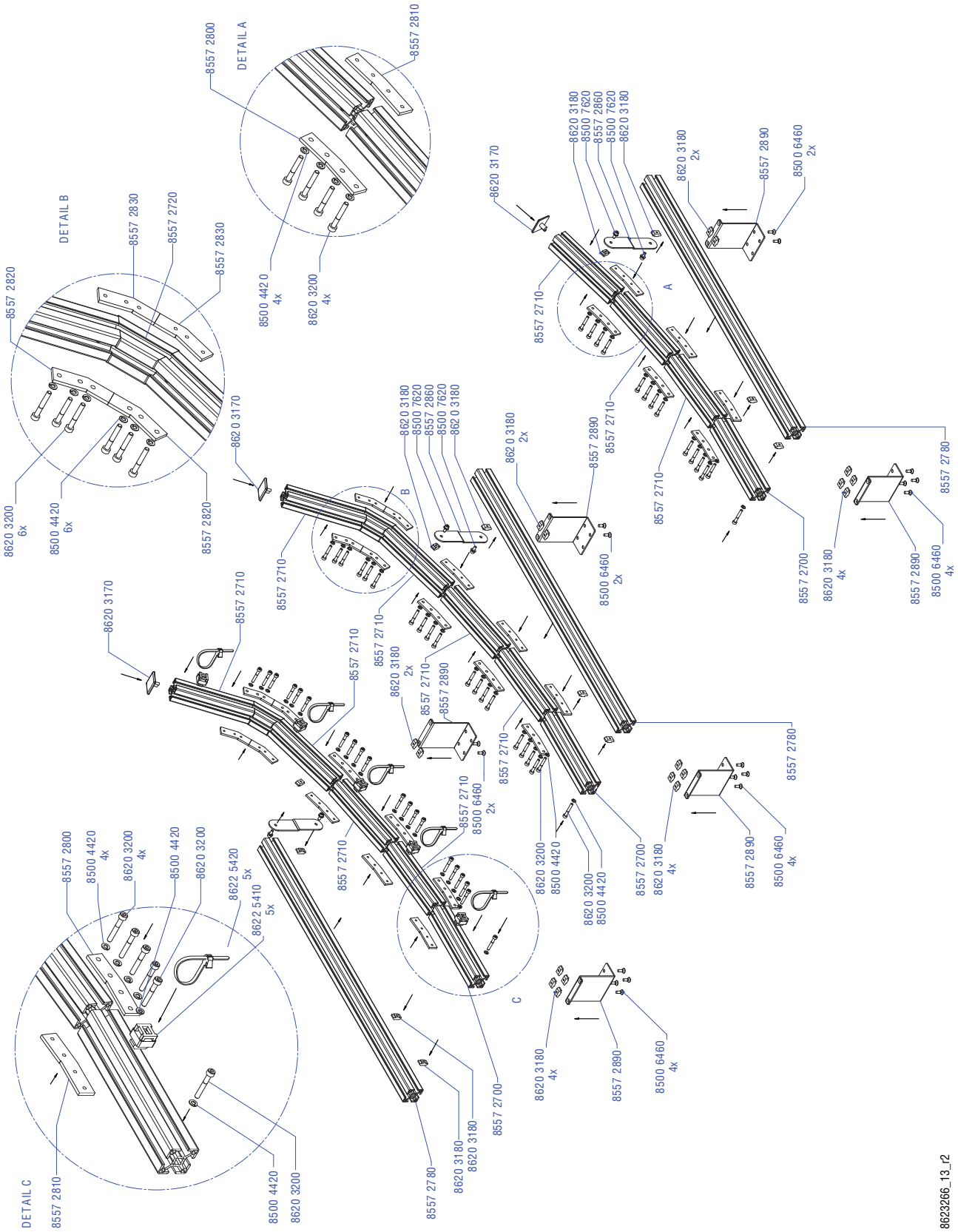


Figure 18. 4-ME Support Structure, Curved Installation



Curved Support Structure Assembly Procedure

Note Allow approximately three hours to assemble a curved support structure.

1. Open the support structure box and familiarize yourself with the contents. Keep the small items in their labeled bags for easy identification. A bag of extra small pieces is included in case one is lost during assembly.
2. Set aside the two long straight support beams (85572790). These two parts are not used with a curved Control Panel.

Left Support Beam Assembly

3. Assemble the long left curved support beam (see Figure 18 on page 55), using the provided T-handle hex tool.
   a. The lowest beam (85572700) is slightly longer than the upper beams (85572710) and has one threaded hole, not two. Orient this beam with the threaded hole facing up and toward the front.
   b. Install lock washers (85004420) on all bolts (86203200) used.
   c. Orient all beam sections so the threaded holes in the slots face up, and the beams curve upward when connected together (Figure 19).

Figure 19. Left Curved Support Beam Orientation

d. Bolts holding the left support segments together insert from the RIGHT through an unthreaded bracket (85572800), and screw into a threaded bracket (85572810) on the LEFT (Figure 20).

Figure 20. Left Curved Support Bolt Orientation

e. For the 45 degree Local Aux Stripe, a small angled support beam (85572720) is installed between the top two short support beams, using four angled brackets, two unthreaded (85572820) and two threaded (85572830).

f. Tighten all bolts securely, but do not over-tighten.

4. Connect the assembled left curved support beam to one of the straight beams (85572780), using two rotating nuts, bolts, and lock washers.

a. Make sure the threaded holes in the straight beam face up.

b. The left straight beam is attached to the LEFT side of the left curved support beam. Align the front ends so they are flush with one another (Figure 21).

Figure 21. Left Support Beams

c. Install lock washers on both bolts used.

d. The rotating nuts (86203180) are oriented with the angled side toward the other beam, and the flat side toward the bolt (Figure 21). Thread the nut so it is just held by the bolt, and slide the nut into the other beam's slot. When the bolt is tightened from the opposite side, the nut should rotate and lock into position.

5. Attach the round ended reinforcing bracket (85572860) to connect the rears of the curved and straight support beams. Two rotating nuts and two smaller screws (85007620) are used. The bracket should be oriented vertically.

6. Attach an end cap (86203170) to the top curved support beam segment. You will need a rubber mallet or a wood block and hammer to force it into place.

7. Attach the five tie-wrap holders (86225410) to the right side of the left curved support beam. You will need to use a crescent wrench or pliers to twist the holders into place. Loop a tie-wrap (86225420) through each holder.

Middle Curved Support Beam

8. Assemble the long middle curved support beam (see Figure 18 on page 55). This is a mirror image of the left support beam. Follow the steps above, with the following important differences.

a. Orient the beam sections so the threaded holes in the slots face up, and the beams curve upward when connected together (Figure 22).

Figure 22. Middle (and Right) Curved Support Beam Orientation

b. Install lock washers on all bolts used.

c. Bolts holding the middle support segments together insert from the LEFT, and screw into threaded brackets on the RIGHT (Figure 23).

Figure 23. Middle (and Right) Curved Support Bolt Orientation

9. Connect the long middle curved support beam to a shorter straight beam. This is a mirror image of the left support beam. The middle straight beam is attached the RIGHT side of the middle curved support beam (Figure 24).

Figure 24. Middle (and Right) Support Beams

10. Attach the top plastic end cap and rear round ended reinforcing bracket. Tie wraps are not used on the middle support beam.

Right Curved Support Beam

11. Assemble the shorter right curved support beam (see Figure 18 on page 55). This beam is similar to the middle support beam, but does not have the top beam segment.

    a. Orient the beam sections so the threaded holes in the slots face up, and the beams curve upward when connected together (Figure 22).

    b. Bolts are inserted from the LEFT and screw into threaded brackets on the RIGHT (Figure 23).

    c. The right straight beam is attached the RIGHT side of the right curved support beam (Figure 24).

    d. Attach the top plastic end cap and rear round ended reinforcing bracket. Tie wraps are not used on the right support beam.

Cutout Lip Brackets

12. Attach the lip brackets (85572890) to the front and rears of the three assembled structures (see Figure 18 on page 55) using rotating nuts and small countersunk screws (85006460). You will need a #2 Philips screwdriver. Four screws are used on the front, connecting to both the straight and curved beams (Figure 25). Two screws are used at the back, connecting to just the straight beam. Attach the brackets so they align.

Figure 25. Lip Bracket with Four Screws

Note If the Control Panel will be mounted on a table top (not in a cutout), the lip brackets can be installed upside-down and secured to the table top with screws.

Curved support beams for a cutout installation are shown in Figure 26.

Figure 26. Assembled Curved Support Beams

Tray Attachment Procedure

Note Allow approximately one hour to attach trays for a 4-ME Control Panel.

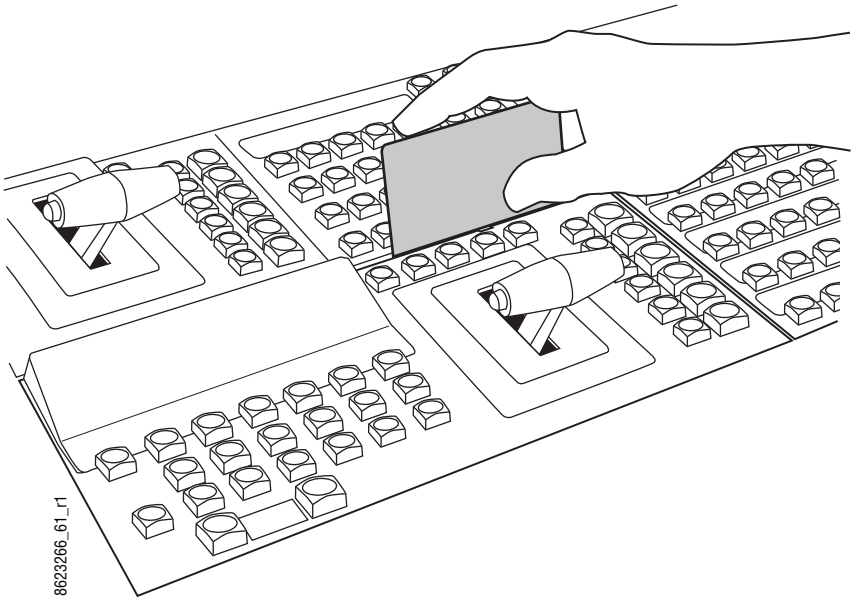
Remove Modules

Modules must be removed to access attachment screw holes.

1. Remove the modules from the Stripes. The long thin System Bar Module can remain in place in the lower Stripe.
2. Modules are removed by inserting a plastic card above the module, to release a spring fastener. Small indents show the locations of the springs. Small modules (Local EMEM) have one spring, standard modules (Transition, Master EMEM) have two, and source select modules can have three springs.

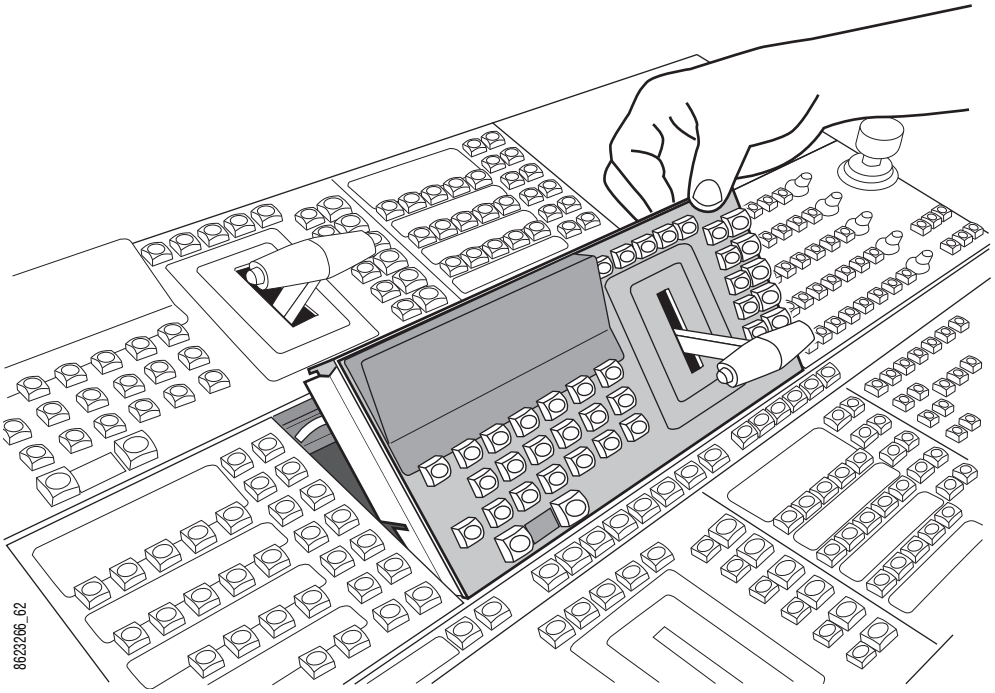
CAUTION Do not use a card with a magnetic strip to remove modules. The card can be scratched which could make its magnetic information unreadable.

Figure 27. Unlocking Module Using Card



3. Once the spring(s) have been released, carefully rotate the back of the module up toward you (assuming you are facing the front of the tray) until it is clear, then pull the module up out of the tray.

Figure 28. Removing Module From Tray

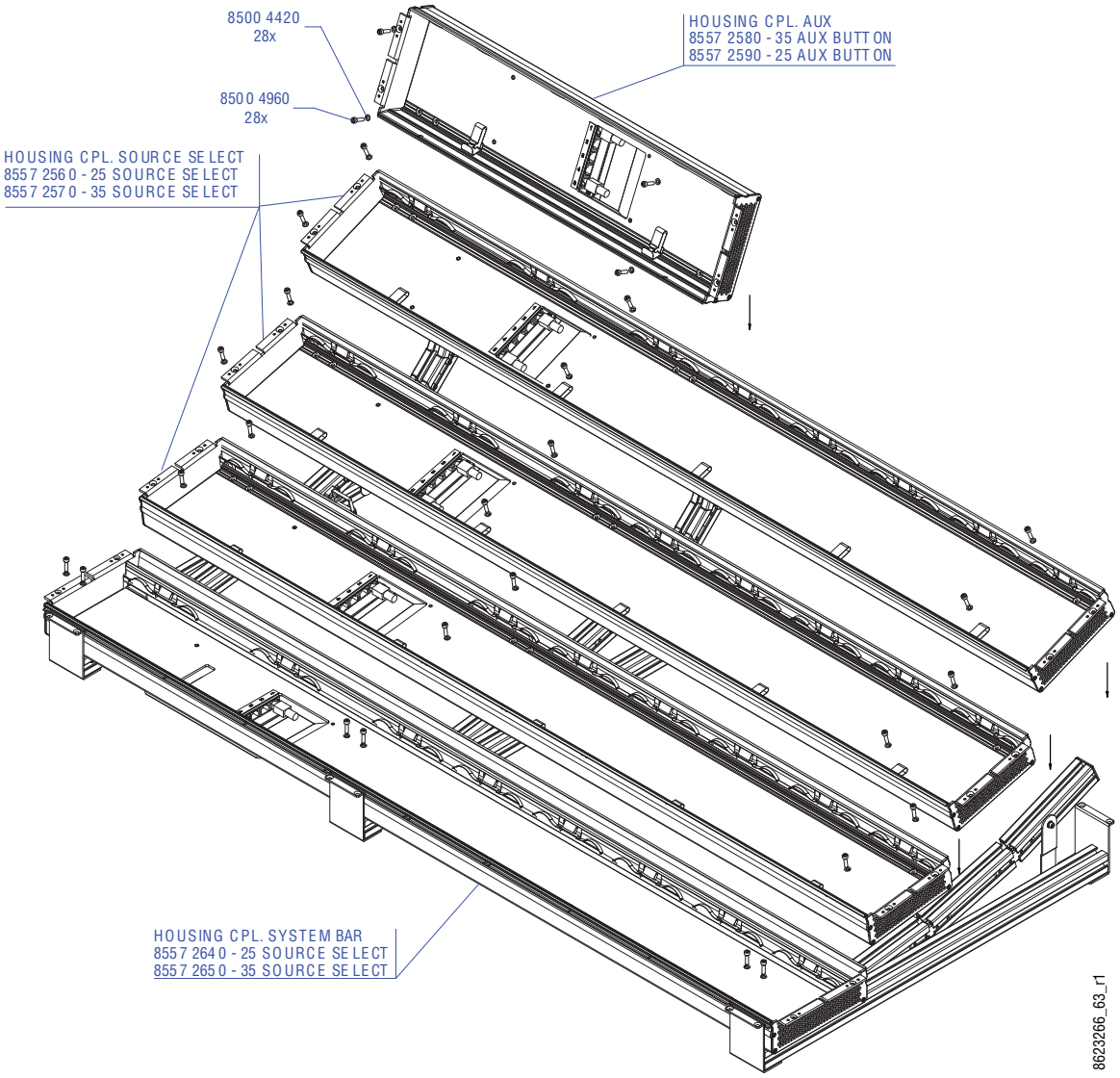


4. Disconnect the cable from the module, and leave the cable dressed inside the tray.

5. Store the module face up in a safe place.

6. Repeat the above steps until all the modules (except the System Bar) have been removed from all the Stripes.

Figure 29. 4-ME Curved Control Panel Tray Assembly



Bottom Two Trays Attachment

Note For screwdriver clearance, multi-pin cables should be connected to each tray before attaching it to the support structure. Trays are connected to the support structure from the bottom up to ensure alignment. Refer to Figure 29.

7. Attach the multi-pin cable to the rear of the bottom tray (which has a System Bar). The other end of this cable will later connect to a specific port on the PCU, but do not connect the cable to the PCU at this time.

CAUTION Do not over-tighten the cable connector screws.

8. Label both ends of each multi-pin cable with matching numbers or letters to easily identify them later.

9. Install lock washers (85004420) on twelve of the shorter bolts (8554960) provided.

10. Carefully lift the tray onto the lower portion of the three curved support structures. Align the lower holes inside the tray with the lower threaded holes in both the straight and curved support structures. Use the provided T-handle hex tool to connect the bottom tray using the bolts with lock washers. Do not completely tighten them at this time. Leave them loose to allow alignment of the next tray.

11. Attach the multi-pin cable to the rear of the next tray. Do not connect the cable to the PCU at this time.

12. Carefully lift the next tray into place. Align its bottom edge with the top lip of the bottom tray and rotate it down into place. Connect bolts and lock washers into both the top and bottom holes that will align with the curved support structure.

13. Tighten all twelve bolts in both trays.

Upper Trays Attachment

14. Attach the multi-pin cable to the rear of the each tray. Do not connect the cable to the PCU at this time.

15. Install lock washers (85004420) on the shorter bolts (8554960) used.

16. Rotate each tray into place, as above, and tighten the six bolts to the curved support structure.

17. When installing the top Local Aux tray, align the tray to the left edge.

Install Tray Assembly Into Cutout

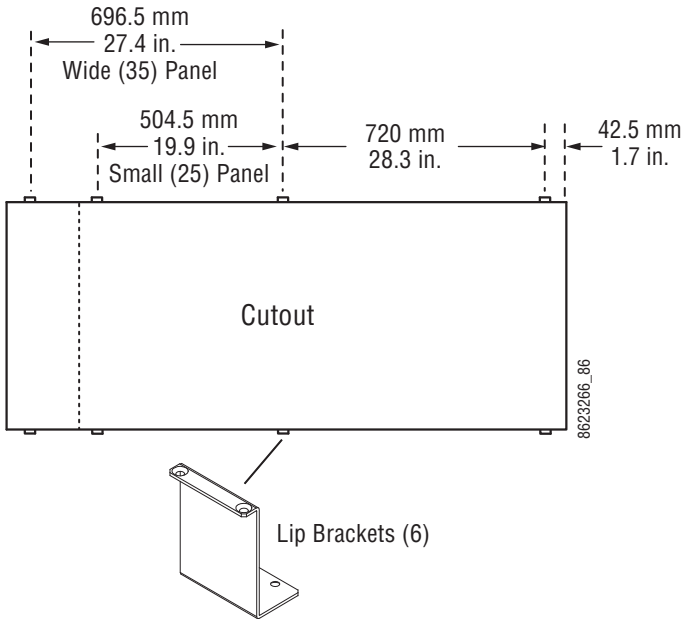
Note Allow approximately one-half hour to install into the cutout.

Installation into the cutout is easier (less weight) when the modules are not in place.

18. Dress the multi-pin cables using the tie wraps as required for your installation. Typically cables can be run up toward the rear of the Control Panel and then be dropped down into the cutout.

19. Carefully lift the support and tray assembly into the cutout. Make sure all six lip brackets rest on the edge of the cutout with sufficient screw attachment space (Figure 30). Drill pilot holes into the edge of the cutout and attach the lip brackets using customer provided screws (12). Depending on the desktop material, the Control Panel can be fastened with sheet metal screws 3.9 mm or crosshead screws 4 mm.

Figure 30. Control Panel Mounting Detail



Replace Modules

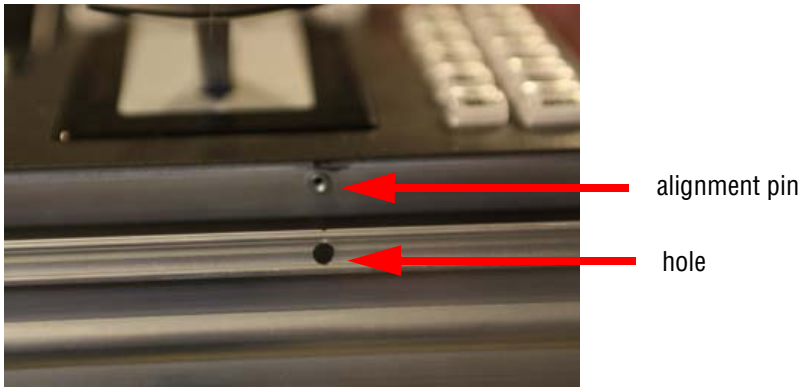
20. Replace the modules removed earlier. The modules are interchangeable, and can be installed into any tray. It is best to insert modules from left to right, to ensure proper alignment.

21. Connect the cable of the left module (Source Select or Local Aux) to the top #1 connector inside the tray. Internal port selection is not critical (the system autodetects the modules), but being consistent will help with later troubleshooting.

22. Dress the cable so it loops at the bottom of the tray to prevent pinching when the module is inserted.

23. Angle the module up and toward you (assuming you are facing the front of the tray assembly). See Figure 28 on page 63. Align the left module (Source Select or Local Aux) at the left side of the tray, and place its bottom front on the front lip of the tray. The front edge of each module has alignment pins, which are inserted into respective holes in the module tray (Figure 31).

Figure 31. Module Alignment Pins



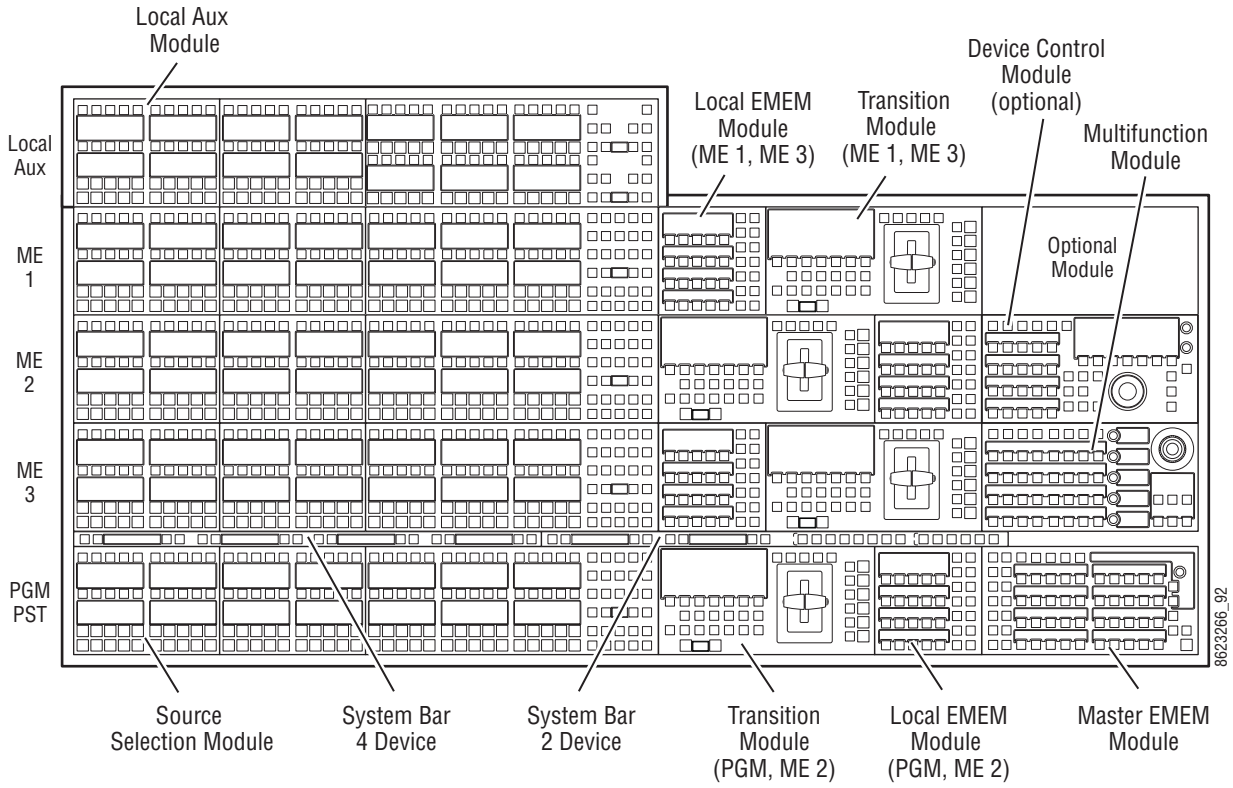
24. Make sure the module is completely seated. When the alignment pins are in place, the module can easily be tilted down into position. Press the top edge of the module surface (do not push on buttons or displays) across its entire width to ensure all springs are locked. Clicks can be heard when the module is properly inserted.

Note Do not push on display menus or buttons to seat a module, as these items could crack. Instead, push on the top edge of the gray surface above the buttons or displays to seat the modules.

25. Connect the cable of the next module to the next lower port, dress the cable, angle and lower that module into place, and repeat until all the trays are completely filled. Blank filler modules are installed the same as a standard module.

26. Recommended 4-ME Control Panel finished module placement is shown in Figure 32.

Figure 32. Kayenne 4-ME Control Panel Recommended Module Placement



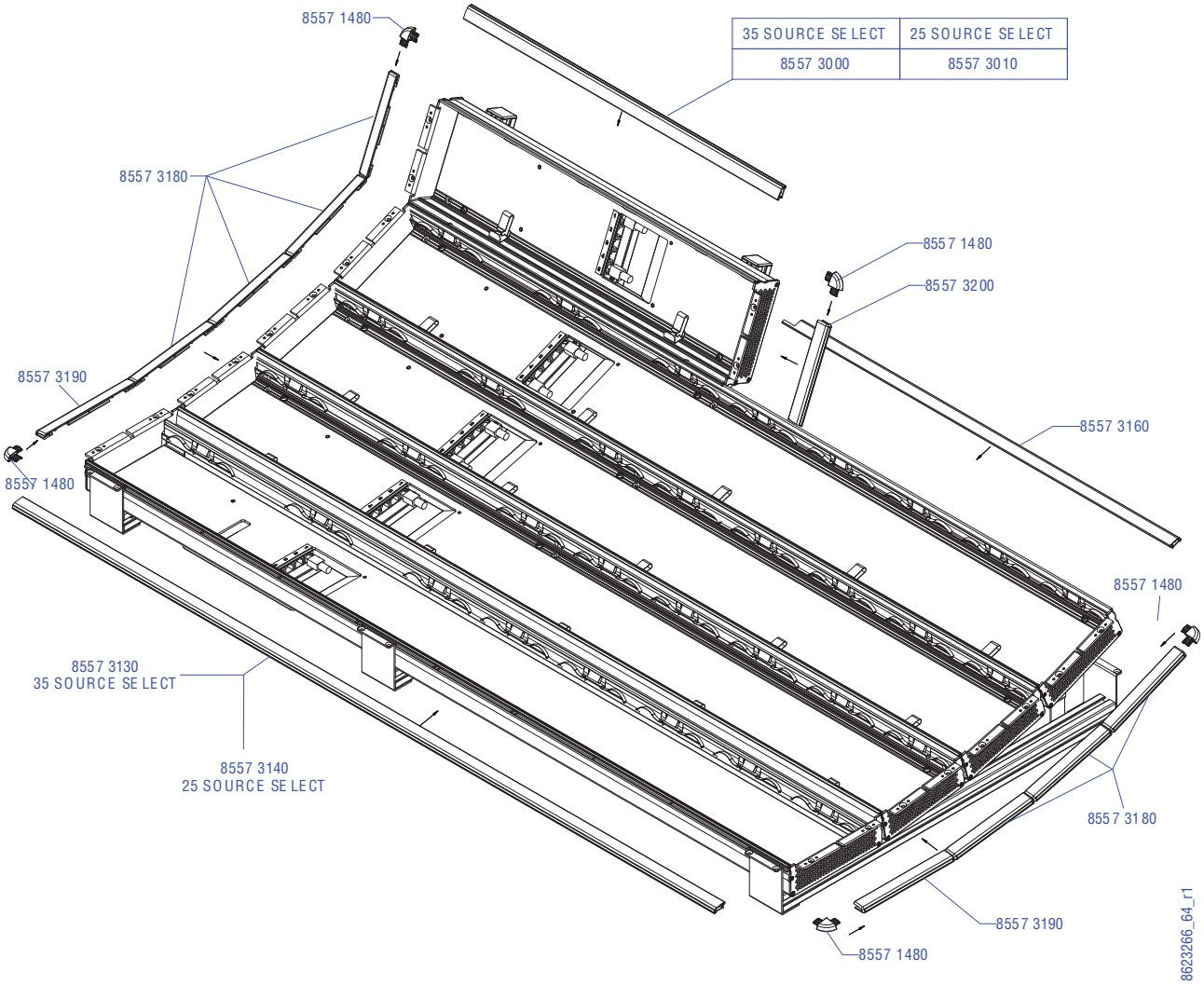
Trim Assembly Procedure

Note Allow approximately one-half hour to install the trim pieces.

Trim pieces slide over the edges of the trays (Figure 33). Square brackets under the tray edges provide clearance. Extra trim pieces are included in the kit for mounting the Local Aux Stripe separately. Some trim pieces will be left over when your installation is complete.

CAUTION Trim parts can easily be installed, but the long pieces can be difficult to remove when the panel is screwed down to a cutout. Make sure your panel mounting is exactly as intended before you attach the trim pieces.

Figure 33. Kayenne 4-ME Control Panel Trim



27. Install the long bottom trim piece first. Center it directly in front of the panel and push it into place.

28. Install the remaining pieces in clockwise order. In particular, you must install the right side of the top Local Aux Stripe trim (this unique piece has an angled edge) before you install the right top edge piece.

This completes the installation of the Kayenne 4-ME Control Panel hardware with attached Local Aux Stripe.

4-ME 35 Control Panel, Flat Assembly

Note Read through the entire procedure before you begin actual assembly.

Figure 34. 4-ME 35 Control Panel Dimensions, Flat Installation

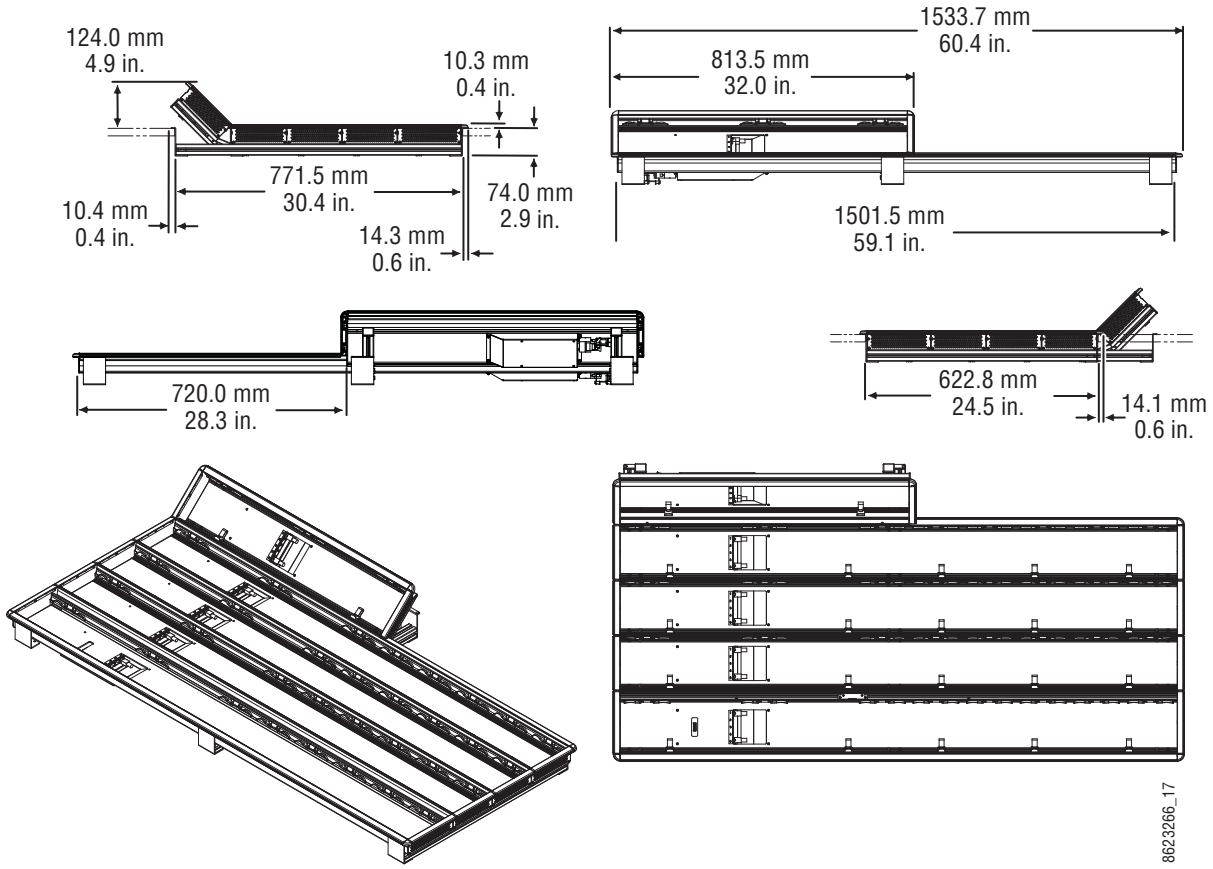


Figure 35. 4-ME Control Panel Cutout Dimensions, Flat Installation

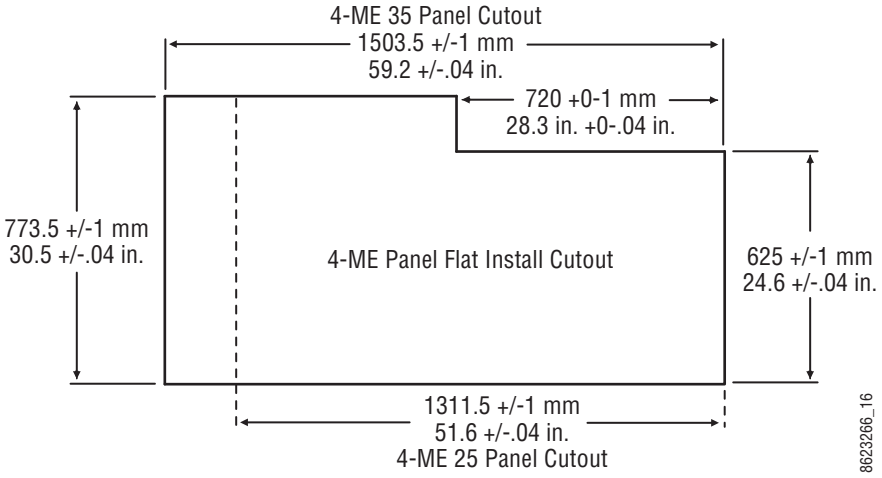
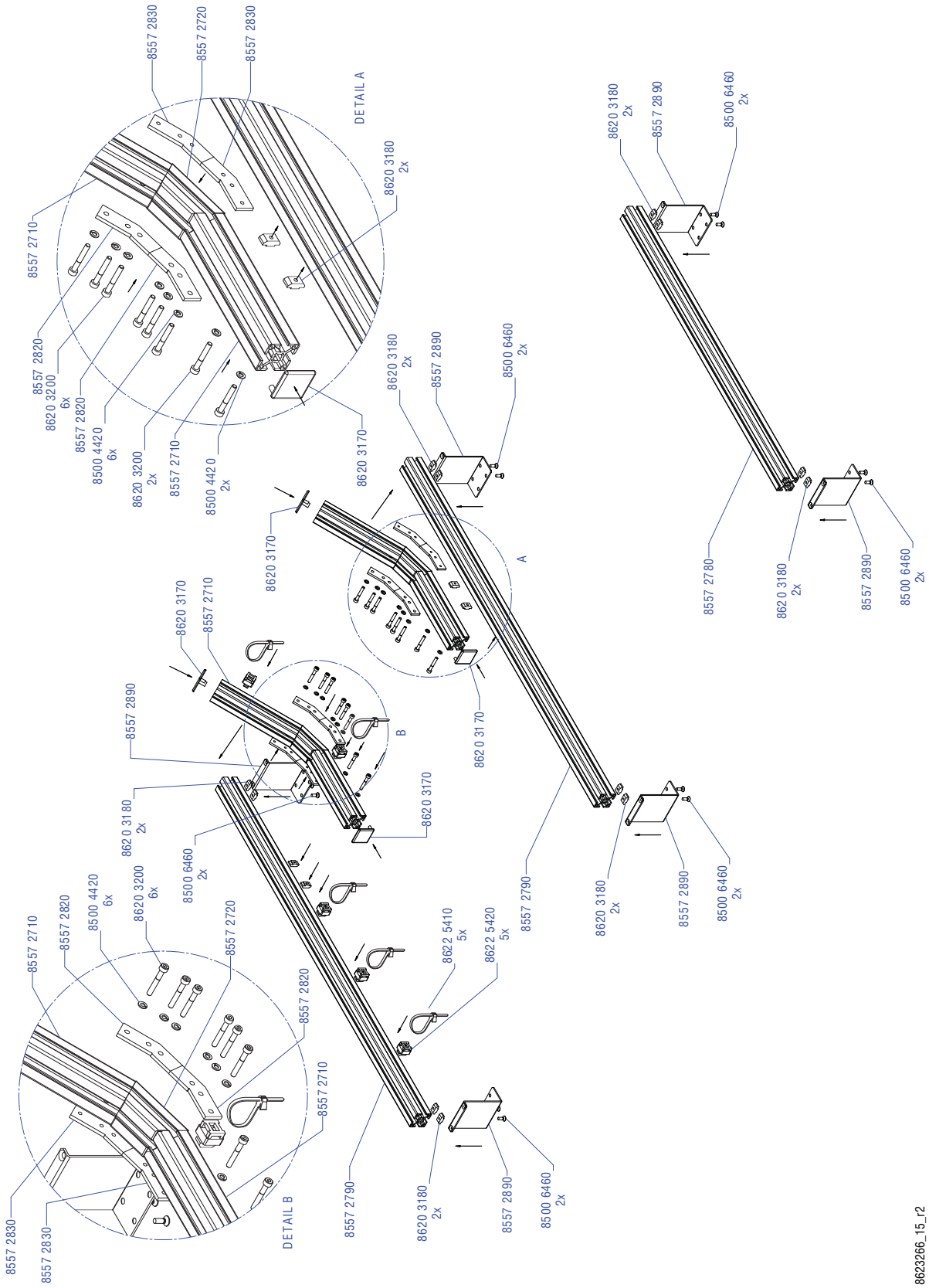


Figure 36. 4-ME Support Structure, Flat Installation



Flat Support Structure Assembly Procedure

Note Allow approximately one and a half hours to assemble a flat support structure.

1. Open the support structure box and familiarize yourself with the contents. Keep the small items in their labeled bags for easy identification. A bag of extra small pieces is included in case one is lost during assembly.
2. Select the support beam segments required for a flat support structure:
   - 2 long support beams (85572790)
   - 1 slightly shorter support beam (8557280)
   - 4 short support beams (85572710)
   - 2 small angle beams (85572720)

   Set aside the remaining beam sections, which are not used with a flat assembly.

Left Flat Support Beam

3. Assemble the left short angled beam (see Figure 36 on page 71) that will support the Local Aux Stripe, using the provided T-handle hex tool.
   a. Install lock washers (85004420) on all bolts (86203200) used.
   b. The small angle beam (85572720) is installed between the two short support beams (85572710).
   c. Orient the beam sections so the threaded holes in the slots face up and the beams angle upward when connected together.

Figure 37. Left Local Aux Support Beam Orientation

d. Bolts holding the left support segments together insert from the RIGHT through an unthreaded bracket (85572800), and screw into a threaded bracket (85572810) on the LEFT

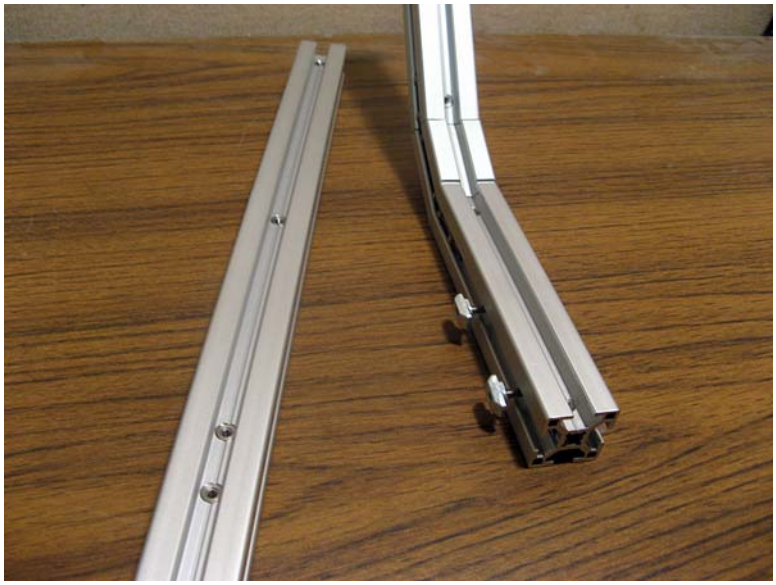
e. Tighten all bolts securely, but do not over-tighten.

4. Connect the assembled left Local Aux support beam to the upper part of one of the long straight beams (85572790), using two rotating nuts, bolts, and lock washers.

a. Make sure the threaded holes in the straight beam face up.

b. The left straight beam is attached to the LEFT side of the Local Aux support beam (Figure 38).

Figure 38. Left Flat Support Beams



c. The rotating nuts (86203180) are oriented with the angled side toward the other beam, and the flat side toward the bolt (Figure 38). Thread the nut so it is just held by the bolt, and slide the nut into the other beam's slot. When the bolt is tightened from the opposite side, the nut should rotate and lock into position.

d. After tightening to seat the rotating nuts, loosen the bolts slightly to permit the beams to slide against one another. This allows adjustment later when the Local Aux Stripe is assembled.

5. Attach an end cap (86203170) to the top curved support beam segment. You will need a rubber mallet or a wood block and hammer to force it into place.

6. Attach three tie-wrap holders (86225410) to the right side of the left straight support beam, and two to the right side of the Local Aux Stripe support. You will need to use a crescent wrench or pliers to twist the holders into place. Loop a tie-wrap (86225420) through each holder.

Middle Flat Support Beam

7. Assemble the middle flat support beam (see Figure 36 on page 71). This is a mirror image of the left support beam. Follow the steps above, with the following important differences.

a. Orient the angled beam sections so the threaded holes in the slots face up, and the beams angle upward when connected together (Figure 39).

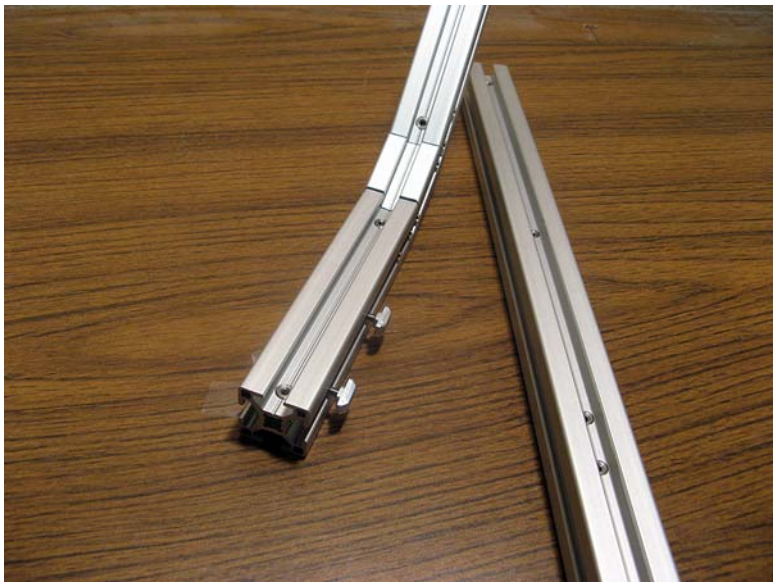
Figure 39. Middle Flat Support Angled Beam Orientation

b. Install lock washers on all bolts used.

c. Bolts holding the middle angled support segments together insert from the LEFT, and screw into threaded brackets on the RIGHT (Figure 39).

8. Connect the assembled middle angled support beam to the upper part of one of the long straight beams (85572790). This is a mirror image of the left support beam. The middle straight beam is attached the RIGHT side of the middle curved support beam (Figure 40).

Figure 40. Middle Straight Support Bolt Orientation



9. Attach the top plastic end cap. Tie wraps are not used on the middle support beam.

Right Flat Support Beam

10. The right support beam for a flat installation is one piece (8557280), and is slightly shorter than the other long beams. Only lip brackets will need to be attached to this support beam.

Cutout Lip Brackets

11. Attach the lip brackets (85572890) to the front and rears of the three flat support beams (see Figure 36 on page 71) using rotating nuts and small countersunk screws (85006460). You will need a #2 Philips screwdriver. Two screws are used on each bracket (Figure 41). Connect the brackets to the beam so they align with each other.

Figure 41. Lip Bracket with Two Screws

Note If the Control Panel will be mounted on a table top (not in a cutout), the lip brackets can be installed upside-down and secured to the table top with screws.

Flat support beams for a cutout installation are shown in Figure 42.

Figure 42. Assembled Flat Support Beams

Module, Tray, Cutout, and Trim Assembly Procedures

Note Allow approximately one and a half hours to complete the 4-ME Flat Control Panel assembly.

The remainder of the flat Control Panel installation procedure is essentially the same as that used for a curved Control Panel. See page 62 through page 68 for specific instructions.

Flat and Curved Control Panel Configuration

It is possible to configure a Kayenne Control Panel with some lower flat Stripes and some upper curved Stripes. This can be accomplished using the flat main support assembly procedure above for the lower MEs, and constructing three curved support structures for just the upper curved MEs. Shifting back the attachment point of the curved support to the flat support permits a combination flat and curved control surface.

CAUTION Cutout dimensions may need modification to accommodate custom flat and curved configurations. Notches might be required for curved support clearance.

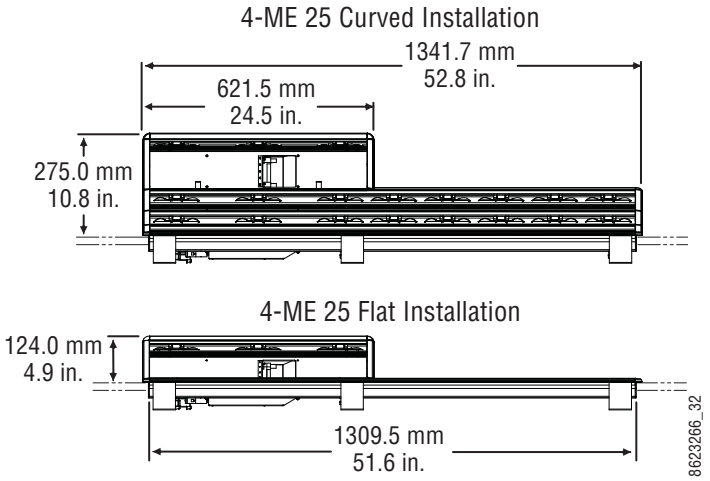
Assembly Of Other Control Panel Configurations

Procedures for assembling the configurations listed in the rest of this section are essentially the same as those presented above. Fewer parts are involved and different cutout dimensions will be used, as shown for each following configuration description.

4-ME 25 Control Panel

Control panels with 25 source selection buttons are narrower in width, but otherwise have the same dimensions as 35 source button models.

Figure 43. 4-ME 25 Control Panel Dimensions



3-ME 35 Control Panel, Curved Assembly

Figure 44. 3-ME 35 Control Panel Dimensions, Curved Installation

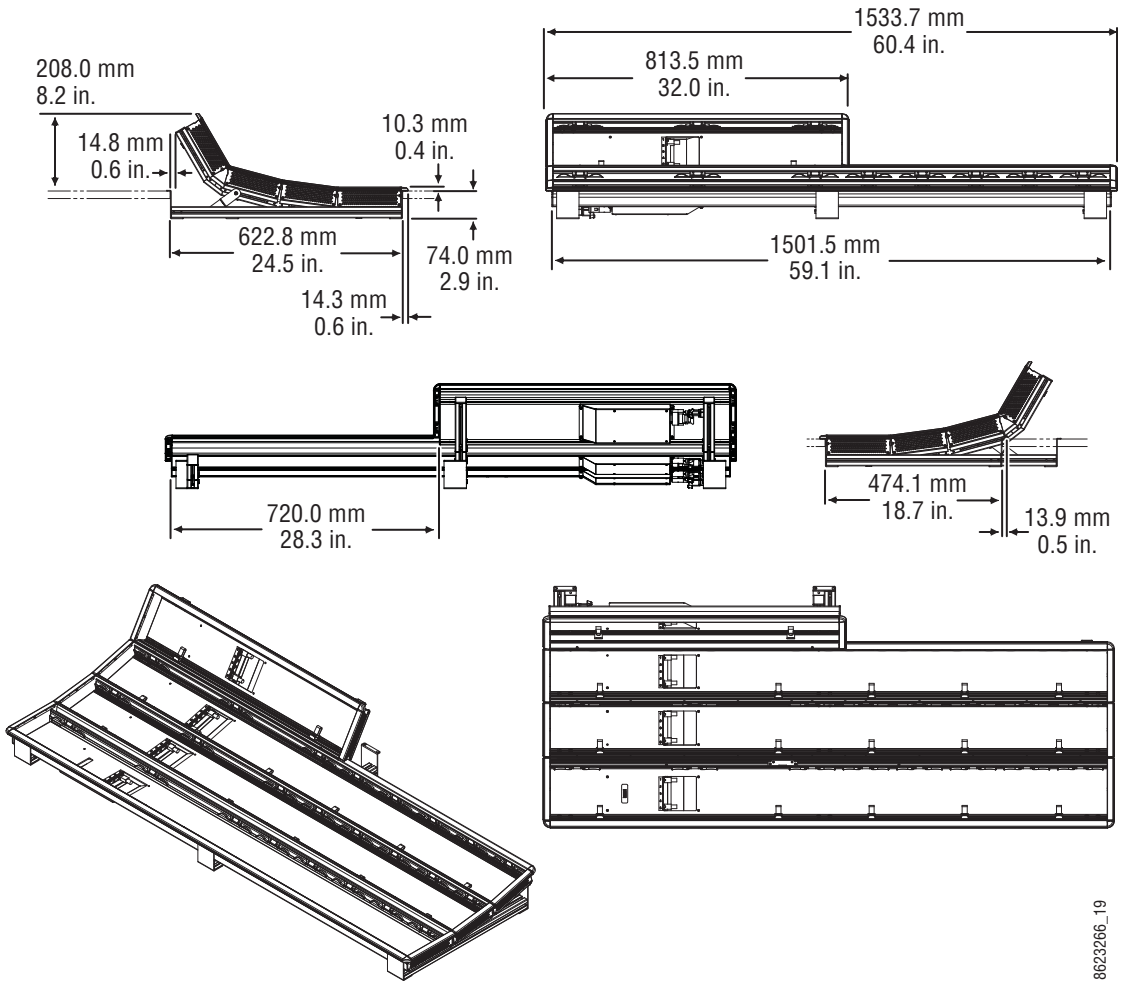


Figure 45. 3-ME Control Panel Cutout Dimensions, Curved Installation

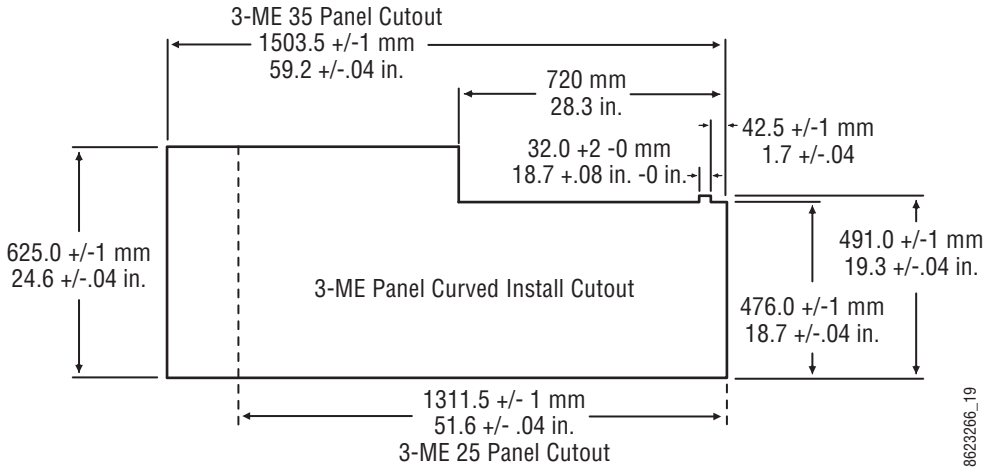
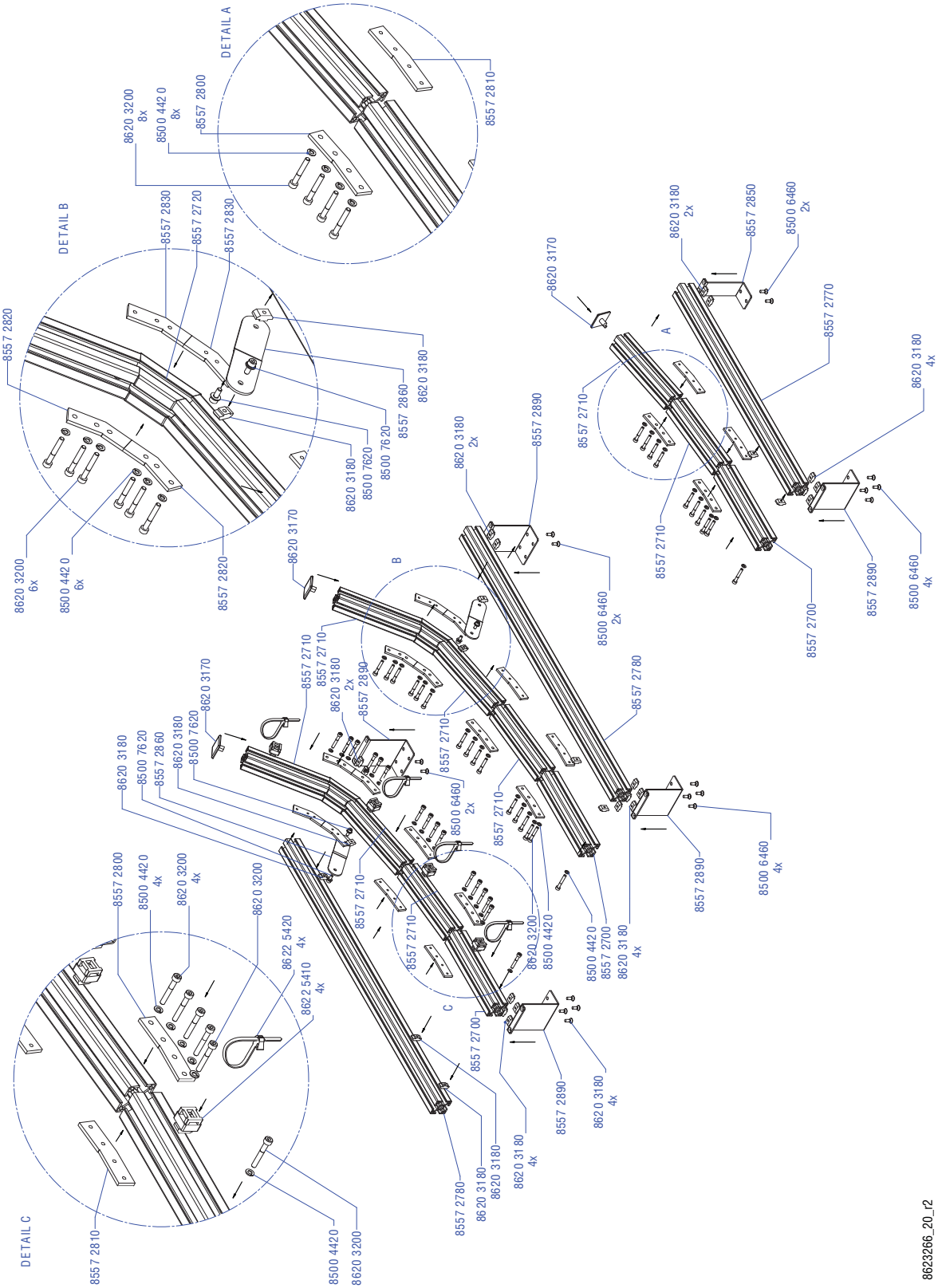


Figure 46. 3-ME Support Structure, Curved Installation



3-ME 35 Control Panel, Flat Assembly

Figure 47. 3-ME 35 Control Panel Dimensions, Flat Installation

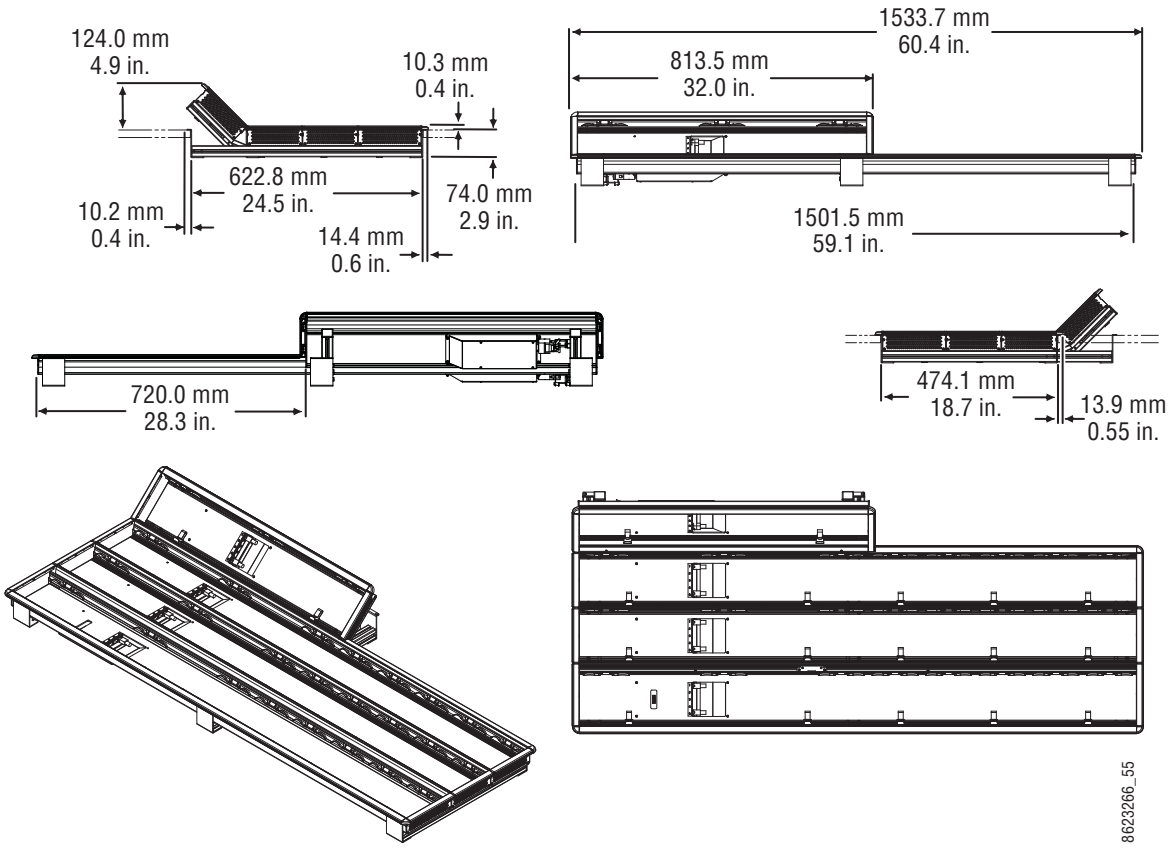


Figure 48. 3-ME Control Panel Cutout Dimensions, Flat Installation

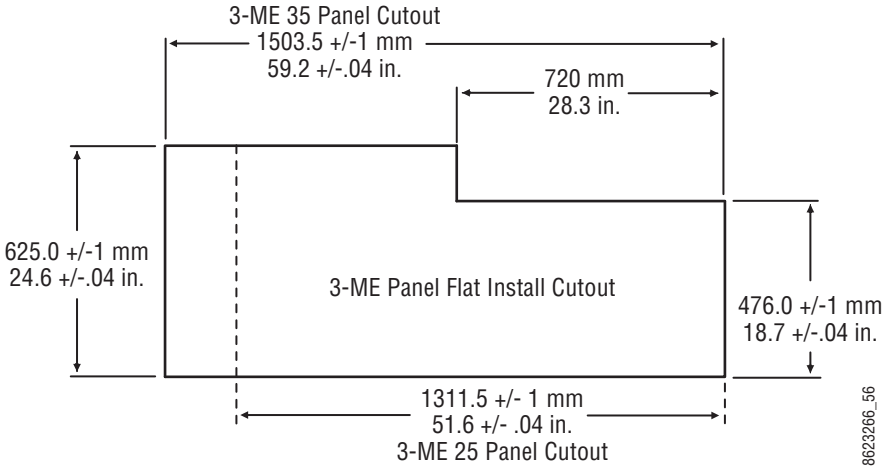
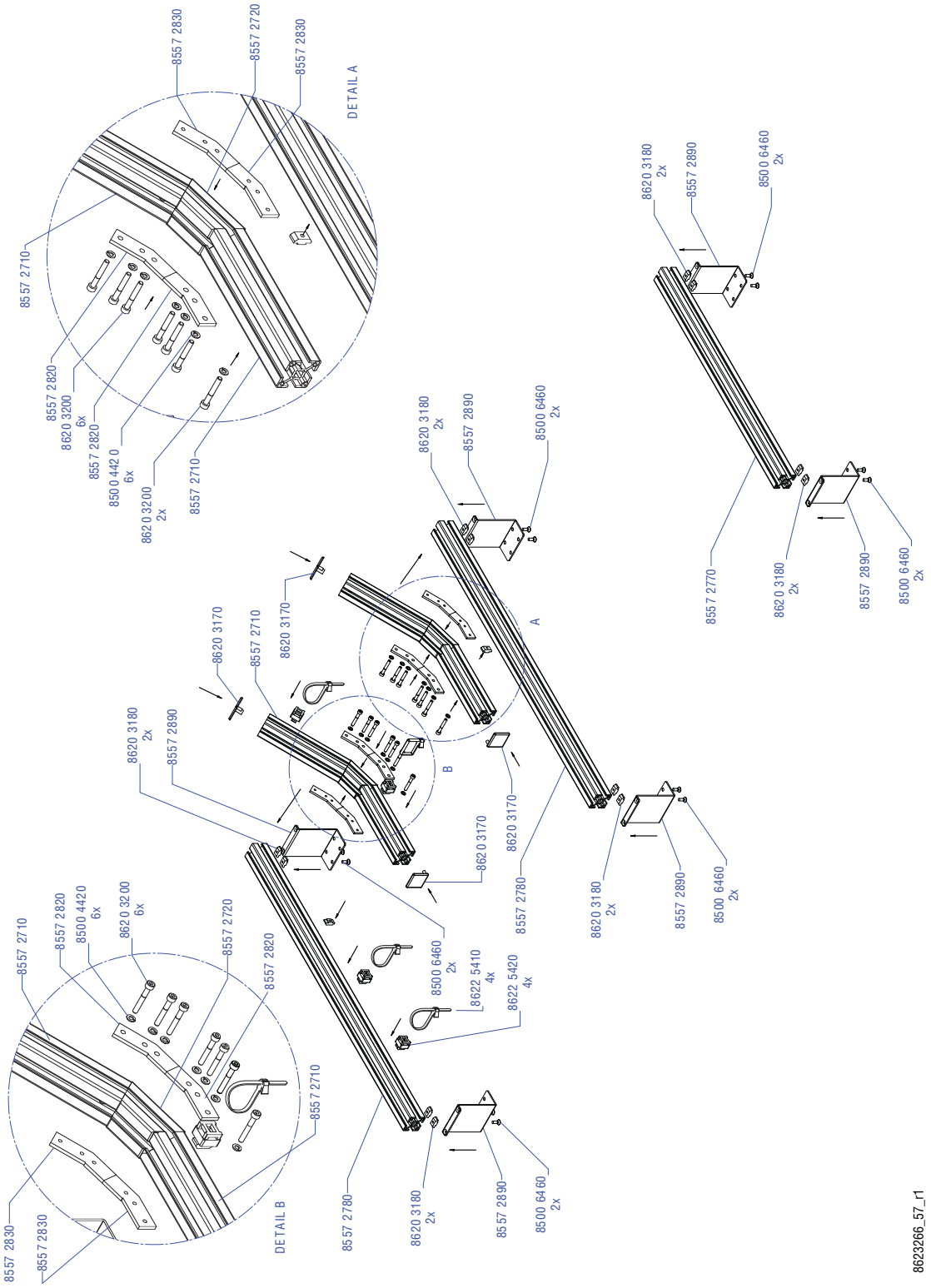


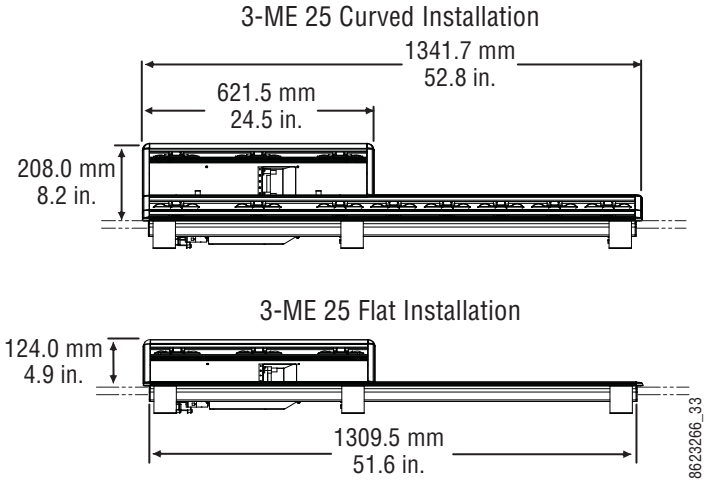
Figure 49. 3-ME Support Structure, Flat Installation



3-ME 25 Control Panel

Control panels with 25 source selection buttons are narrower in width, but otherwise have the same dimensions as 35 source button models.

Figure 50. 4-ME 25 Control Panel Dimensions



2-ME 35 Control Panel, Curved Assembly

Figure 51. 2-ME 35 Control Panel Dimensions, Curved Installation

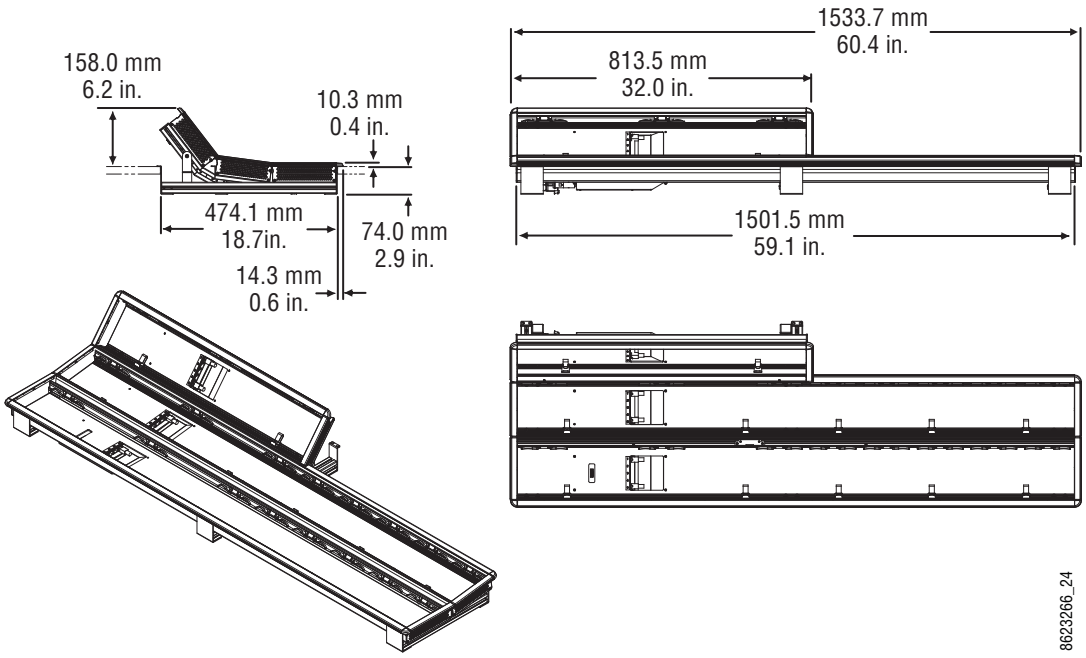


Figure 52. 2-ME Control Panel Cutout Dimensions, Curved Installation

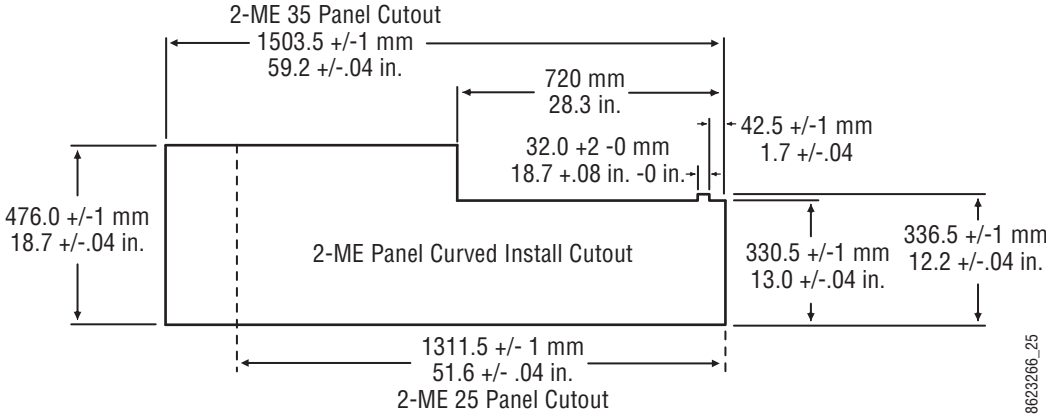
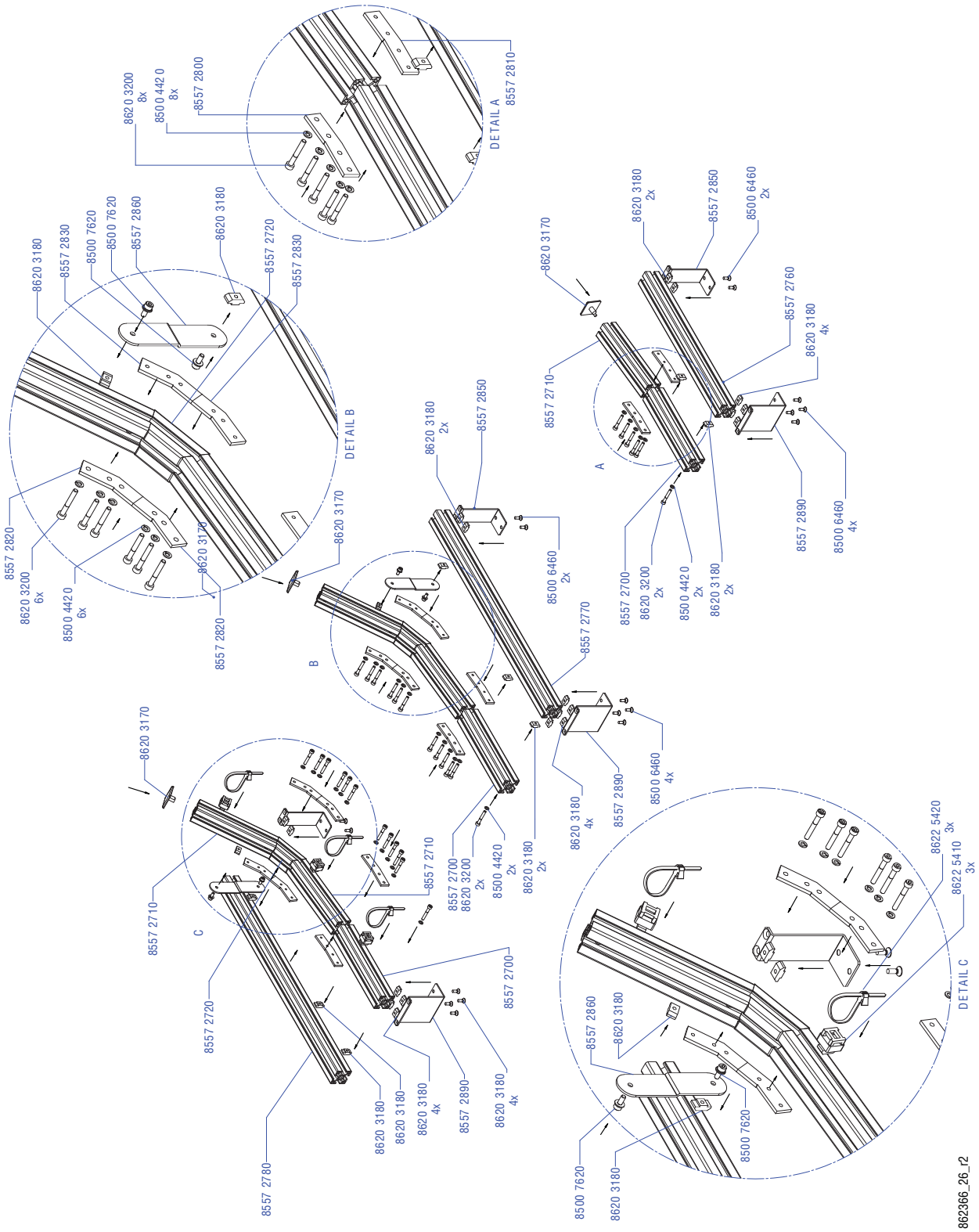


Figure 53. 2-ME Support Structure, Curved Installation



2-ME 35 Control Panel, Flat Assembly with Local Aux

Figure 54. 2-ME 35 Control Panel Dimensions, Flat Installation

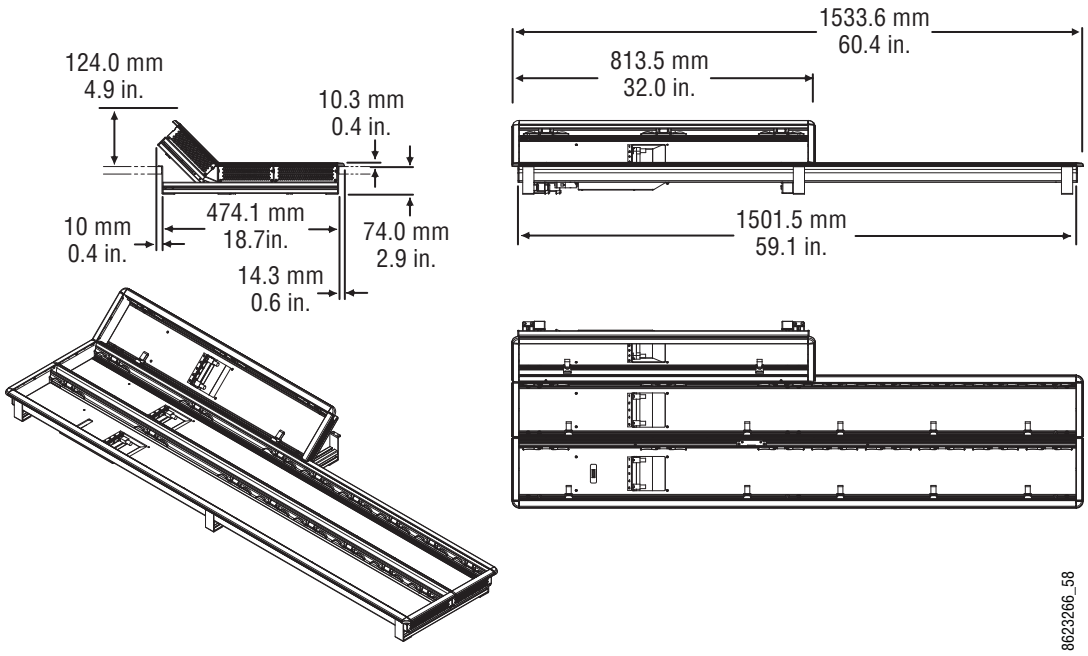


Figure 55. 2-ME Control Panel Cutout Dimensions, Flat Installation

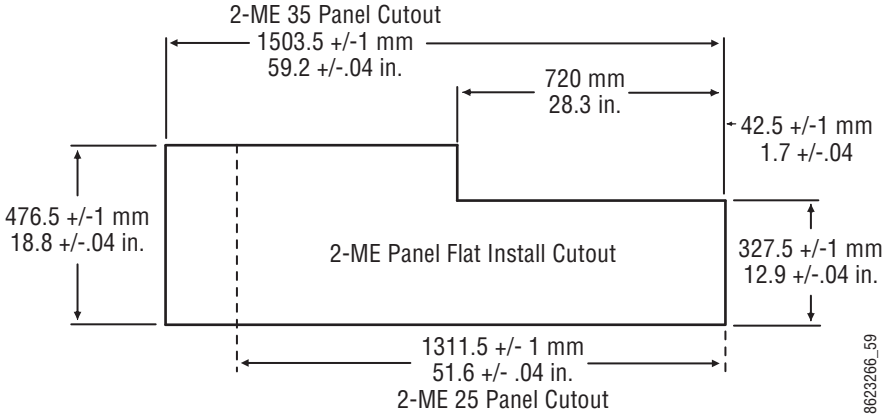
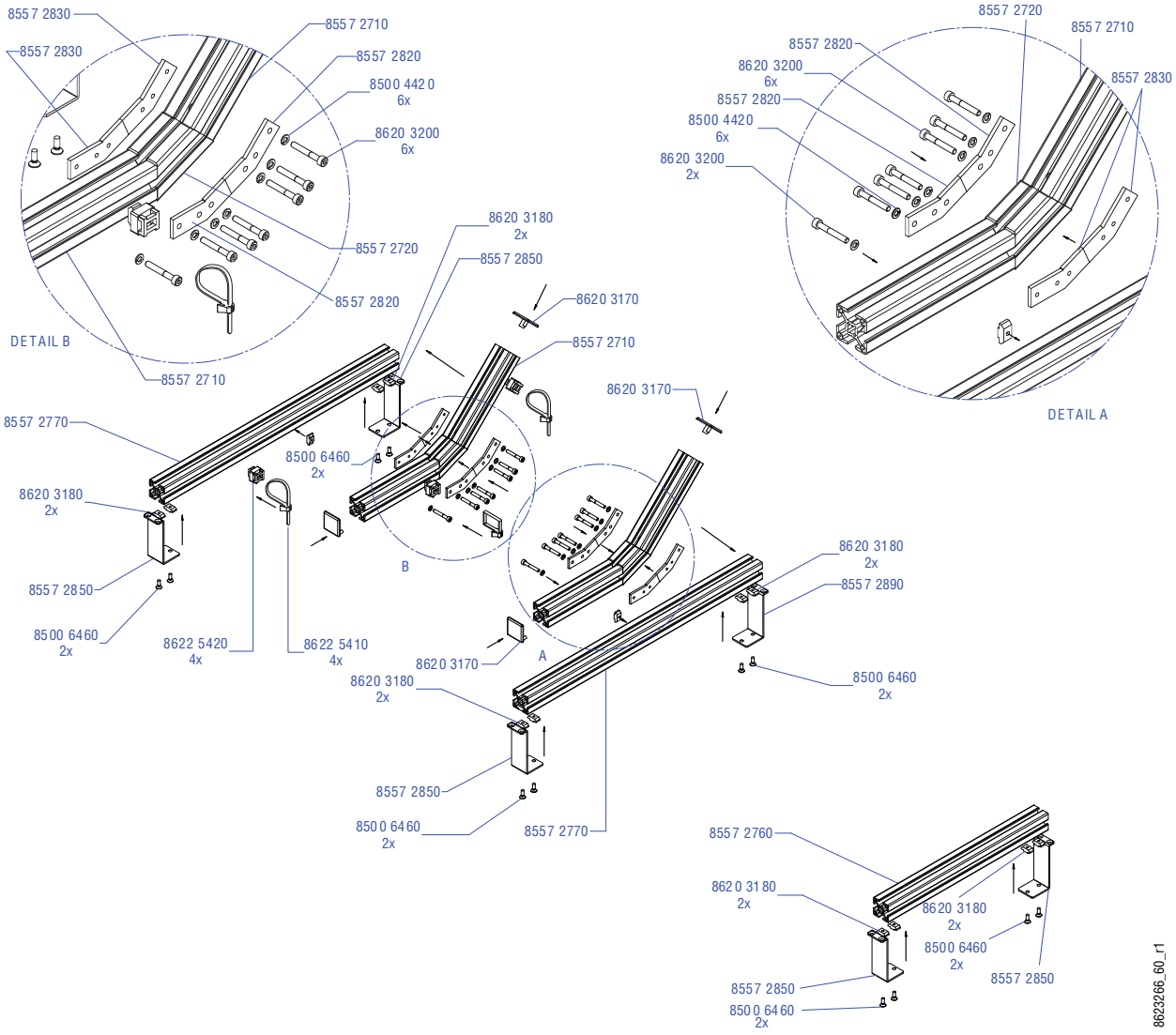


Figure 56. 2-ME Support Structure, Flat Installation



2-ME 35 Control Panel, Flat without Local Aux

Figure 57. 2-ME 35 Control Panel Dimensions, Flat Installation

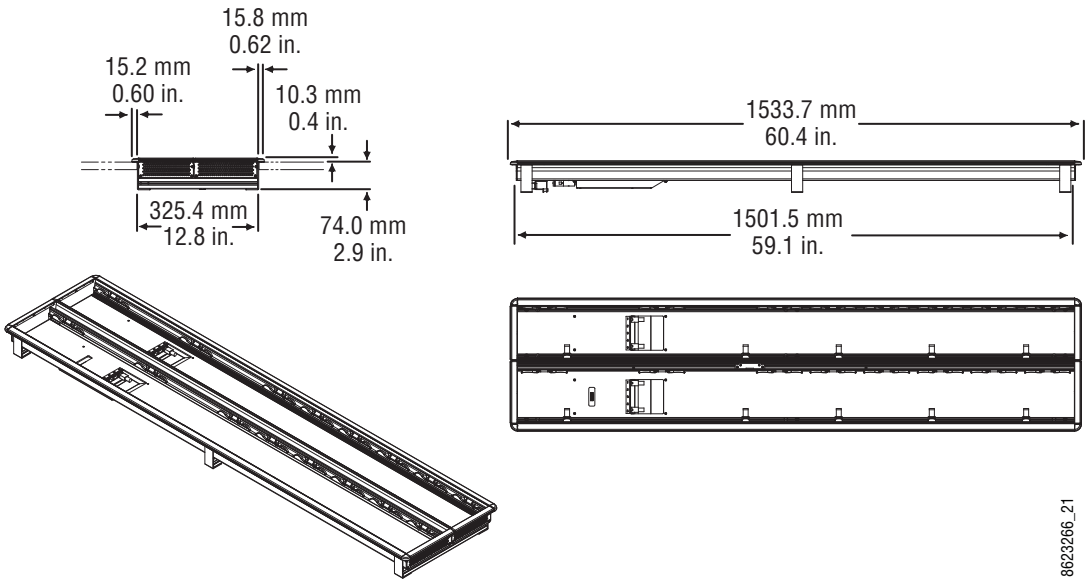


Figure 58. 2-ME Control Panel Cutout Dimensions, Flat Installation

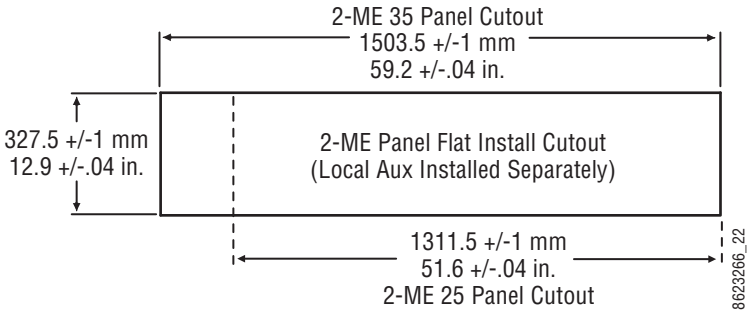
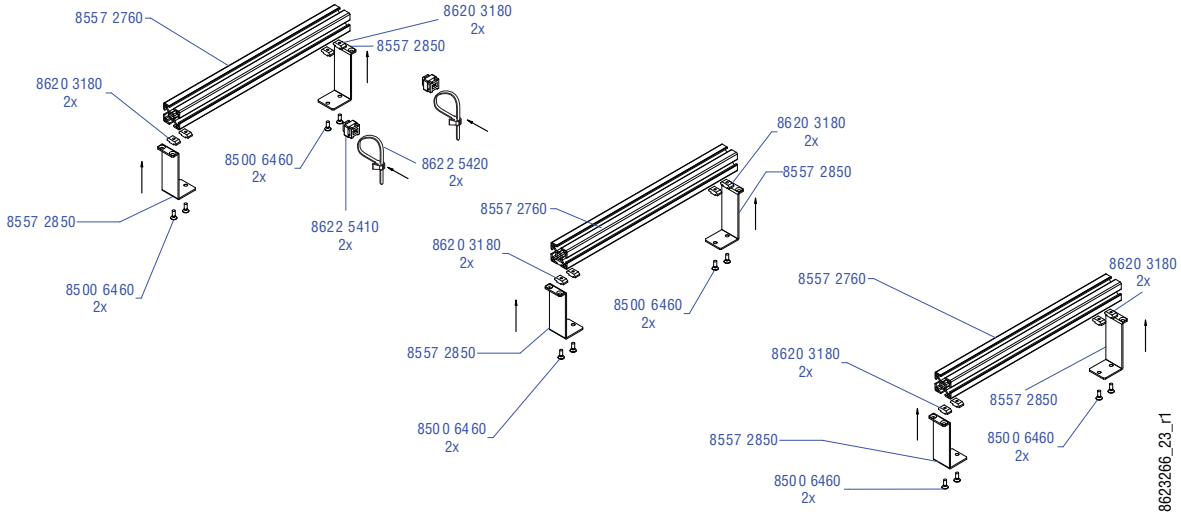


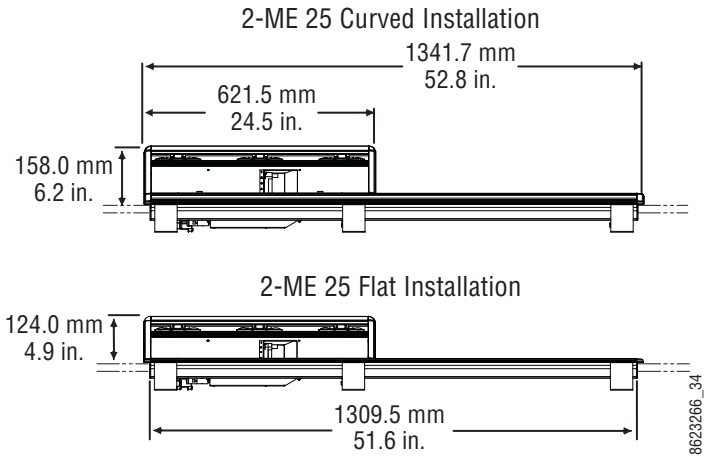
Figure 59. 2-ME Support Structure, Flat Installation, w/o Local Aux Stripe



2-ME 25 Control Panel

Control panels with 25 source selection buttons are narrower in width, but otherwise have the same dimensions as 35 source button models.

Figure 60. 2-ME 25 Control Panel Dimensions



1-ME 15 Control Panel

Figure 61. 1-ME 15 Control Panel Dimensions, Flat Installation

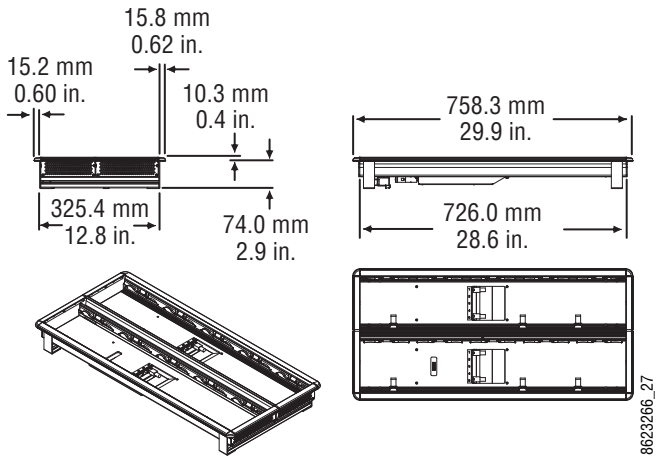


Figure 62. 1-ME 15 Control Panel Cutout Dimensions, Flat Installation

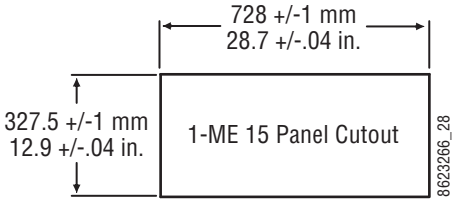
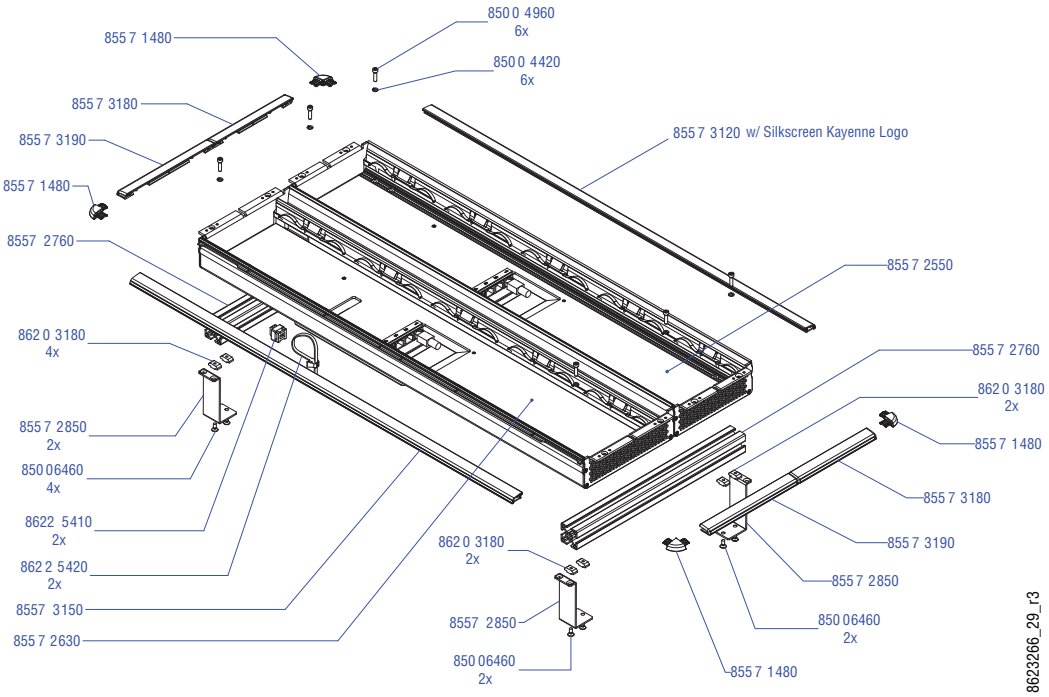


Figure 63. 1-ME Support Structure and Trim, Flat Installation



Separately Mounted Local Aux Stripe (35 & 25 Models)

Figure 64. Local Aux Stripe Separate Installation Dimensions

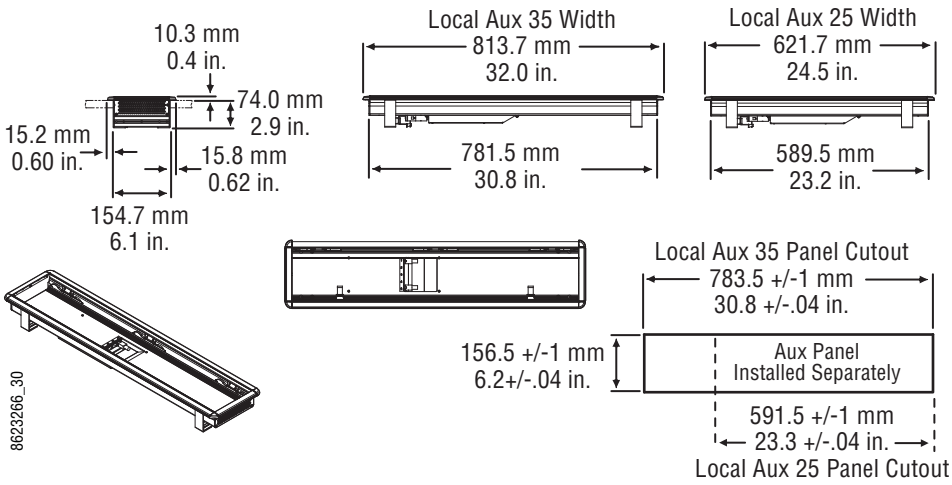
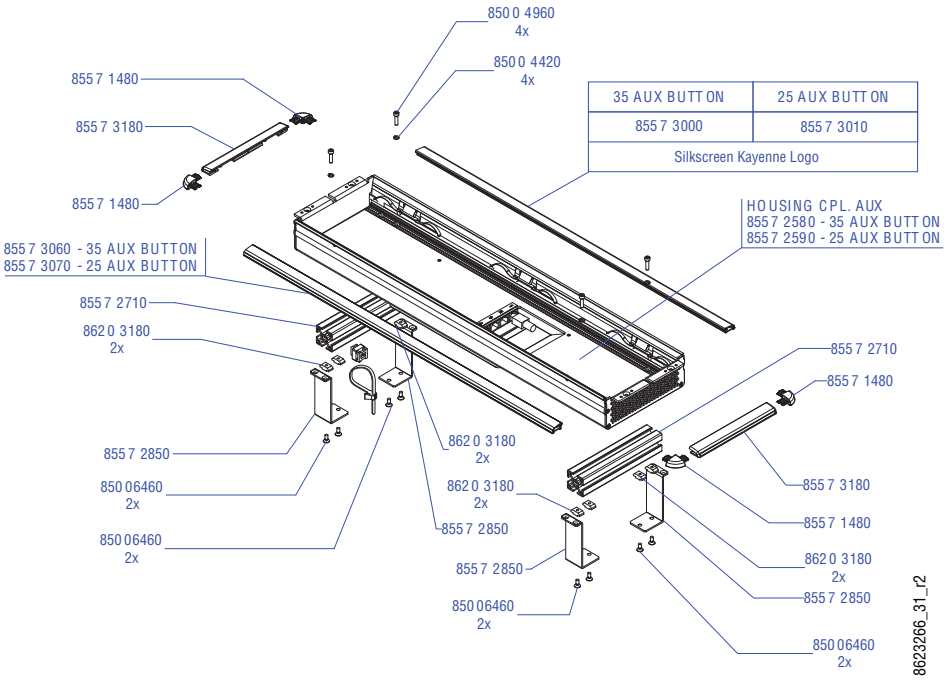


Figure 65. Local Aux Stripe Support Structure, Tray, and Trim



Control Panel Stripe-PCU Connections

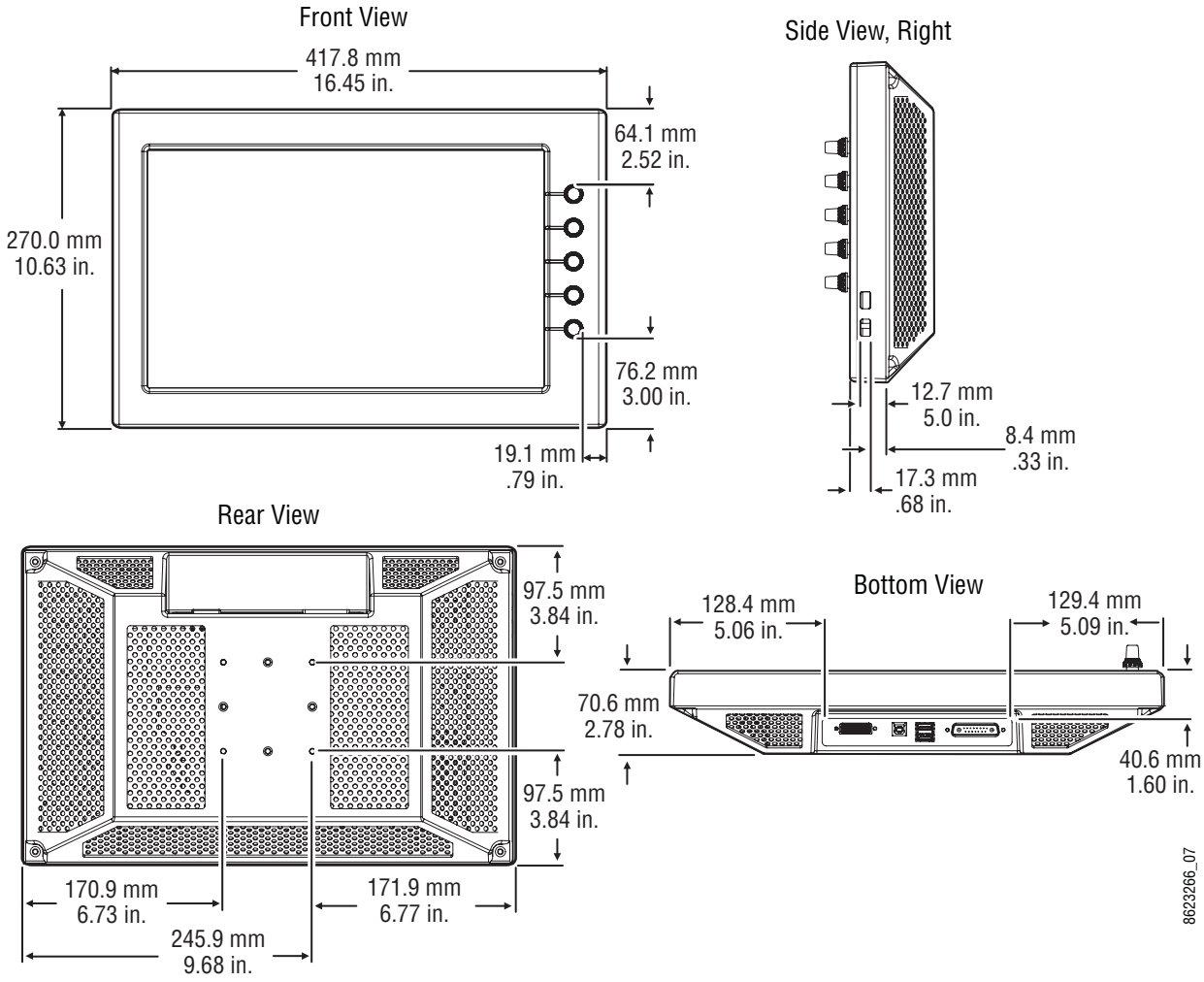
Connectors on the outside bottom of the Stripe connect to the PCU, using a special multi-pin cable that carries both power and communications.

CAUTION Do not connect or disconnect the multi-pin cables linking a Kayenne Control Panel tray and PCU while the PCU is powered up. Damage to the Kayenne equipment can result.

Touch Screen Menu Panel Installation

Menu Panel Dimensions

Figure 66. Menu Panel Dimensions

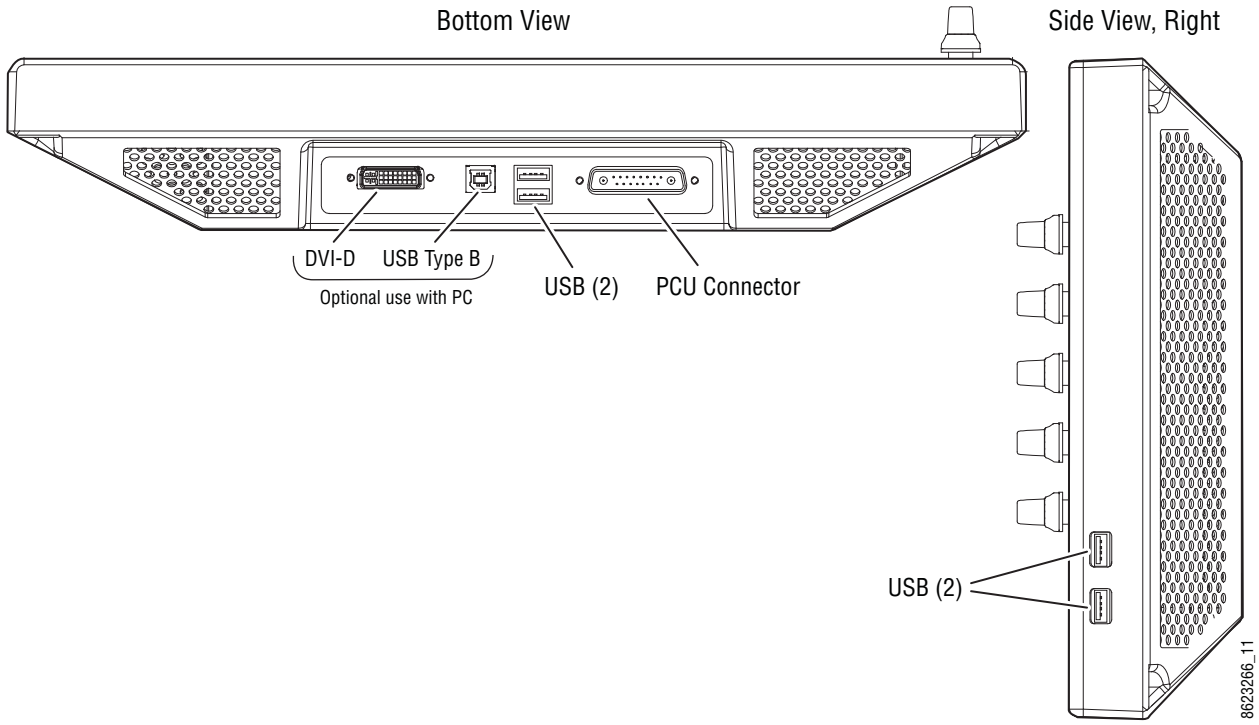


Menu Panel Connectors

The Kayenne Menu Panel's processor is located in the PCU. The Menu Panel connects to the PCU with a special multi-pin cable that carries both power and communications signals.

CAUTION Do not connect or disconnect the multi-pin cables linking a Kayenne Menu Panel to the PCU while the PCU is powered up. Damage to the Kayenne equipment can result.

Figure 67. Menu Panel Connections



Menu Panel Cooling

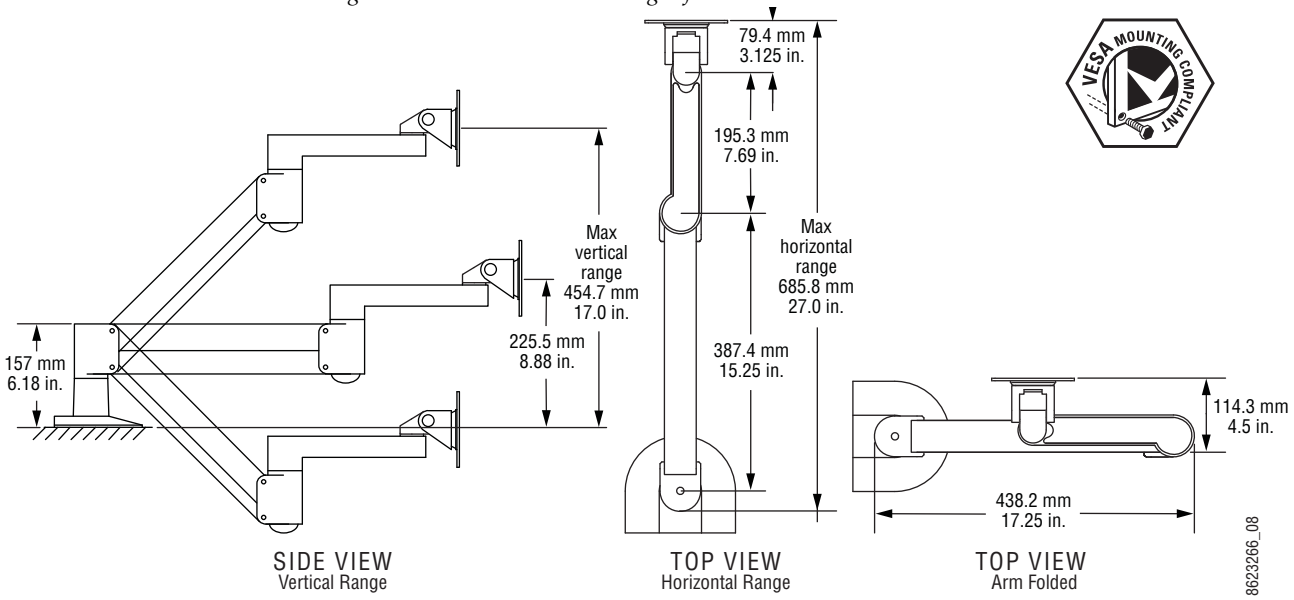
CAUTION Do not install the Menu Panel into an enclosed space. Passive air movement is required for cooling.

The Kayenne Menu Panel is externally powered and does not have internal cooling fans. The electronics are convection cooled through perforations in the rear of the Menu Panel chassis. Mounting the panel free-standing with the articulated arm allows maximum air movement, and is the preferred installation method. If an alternative method is used, ensure that all vents are unobstructed and adequate airflow is available.

Menu Panel Articulated Arm Installation

The Kayenne Menu Panel has VESA 75 threads on the back that can be used to mount the Menu Panel to the supplied articulated arm, or any VESA compliant mounting system.

Figure 68. Articulated Arm Range of Motion Dimensions



The supplied articulated arm is equipped with a flex-mount system, permitting a variety of mounting options (table-top, wall mount, etc.). See the documentation provided with the articulated arm for specific installation instructions.

Kayenne Menu on User PC Installation

The Kayenne Menu application can be installed on a user PC, which can be configured with the Kayenne network to provide an additional control point to the Kayenne system.

CAUTION Access to the user PC should be controlled when the Kayenne system is in use, to prevent accidental changes to Kayenne system operations.

PC Requirements

The PC running the Kayenne Menu application should have at least 2 GB RAM, a 2 GHz processor, 500 MB available hard disk space, 1280 x 1024 minimum screen resolution, and be running Windows XP with Service Pack 3. The PC must also support 10Base-T or 100Base-T Ethernet and high-speed USB.

Macintosh Computer Operation

Macintosh computers with Intel processors can run Windows programs (including the Kayenne Menu application), using the Apple computer Boot Camp mechanism (booting into the Windows OS partition), or by running

a Virtual Machine (VM). VM operation allows running two different operating systems on the same computer simultaneously, with instantaneous switching between the two environments. Parallels and VMWare are two commercially available VM solutions for Mac. The Mac hardware and VM created must meet the PC requirements listed above.

In all cases, a Windows OS will need to be installed on the Mac (into the Boot Camp partition or as a VM), and the Windows environment will need to be configured (including I/O device access, IP addresses, etc.). When a working Windows environment exists on the Mac, the Kayenne Installer program can be used to install the Kayenne Menu application into the Mac's Windows environment, and the application can operate with a Kayenne system the same as if it was running on a Windows PC.

Hardware Installation

Connect a Category 5 Ethernet cable from the user PC to the Kayenne network, either indirectly via a properly configured network gateway, or by directly plugging the cable into an available port on the Kayenne system. If using a direct connection, the PC's IP address must be compatible with the Kayenne system network.

Menu on User PC Software Installation

Kayenne Menu Panel software is included on the Kayenne Software USB stick, and is installed using the standard Kayenne software installation process. The Kayenne Menu application requires Microsoft .NET Framework software, which is also included on the USB stick.

If the correct version of the Microsoft .NET Framework software is already present on your PC, the Kayenne Menu application can be installed using the standard software update process.

If .NET Framework software is not present, it can be installed by running the executable file located in the DotNet folder on the Kayenne Software USB stick.

Refer to the separate *Kayenne Release Notes* for specific software installation information.

User PC Configuration

Windows Firewall, and any other firewall security software (e.g. Officescan Personal Firewall), must be disabled to use the Kayenne Installer program or NetConfig on a user PC.

Section 4

Frames Installation

General Rack Mounting Instructions

Weight Distribution

Make sure that you mount the unit in the rack so that it is evenly balanced to prevent damage to the frame and to avoid creating a hazardous condition. Kayenne Frames (8-RU, 4-RU, and PCU) require rear rack support.

Cooling Requirements

The maximum ambient temperature for a Kayenne chassis is 40-degrees C (104-degrees F) monitored at the air intake. Installing the frame in a closed or multi-unit rack assembly together with other units could increase the maximum ambient temperature for this unit. If the unit is installed in a rack, ventilation openings should not be blocked or otherwise covered. Make sure you install the frame to allow for cooling airflow.

Power Connections

When connecting the unit to the supply circuit be sure that the supply circuit of the rack is not overloaded. The unit must be well-grounded. The safety ground is accomplished via the third wire in the AC line cord(s). The rear panel ground lug is available for an optional ground.

All Kayenne Frame power supplies are 100V-240V AC +/-10% autorange, power factor corrected. Each power supply has its own line IEC line cord. Connecting each line cord to a separate AC circuit is recommended.

Kayenne 8-RU Video Processor Frame Installation

8-RU Frame Dimensions

Figure 69. Kayenne 8-RU Frame Dimensions (Front View)

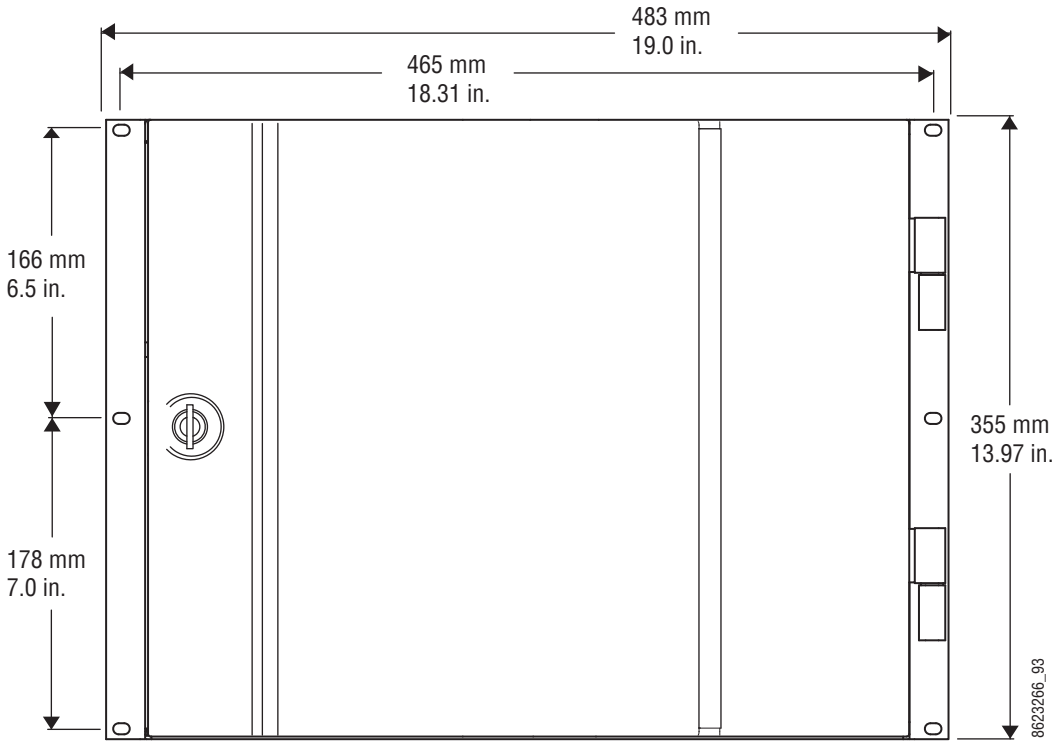
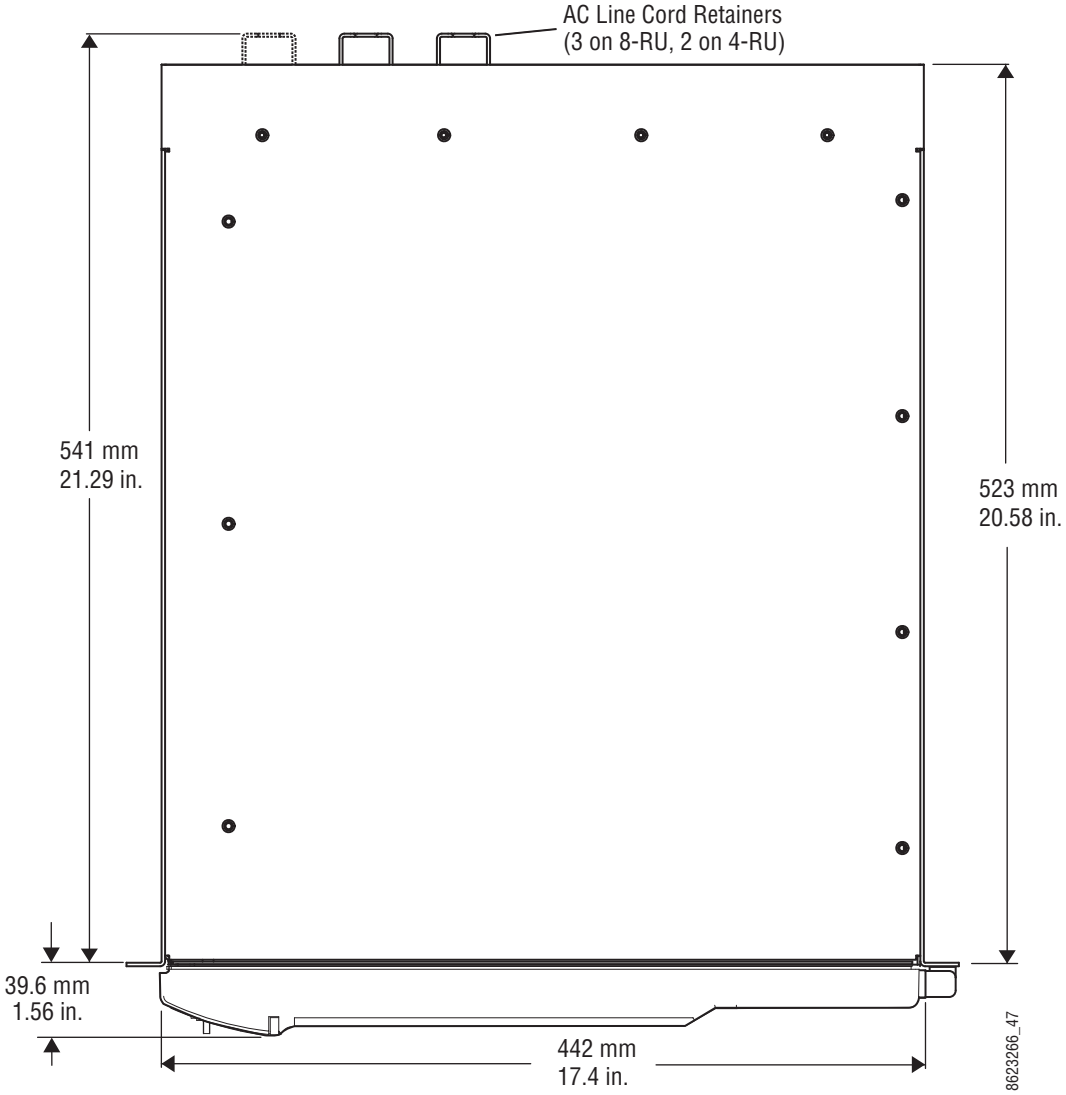
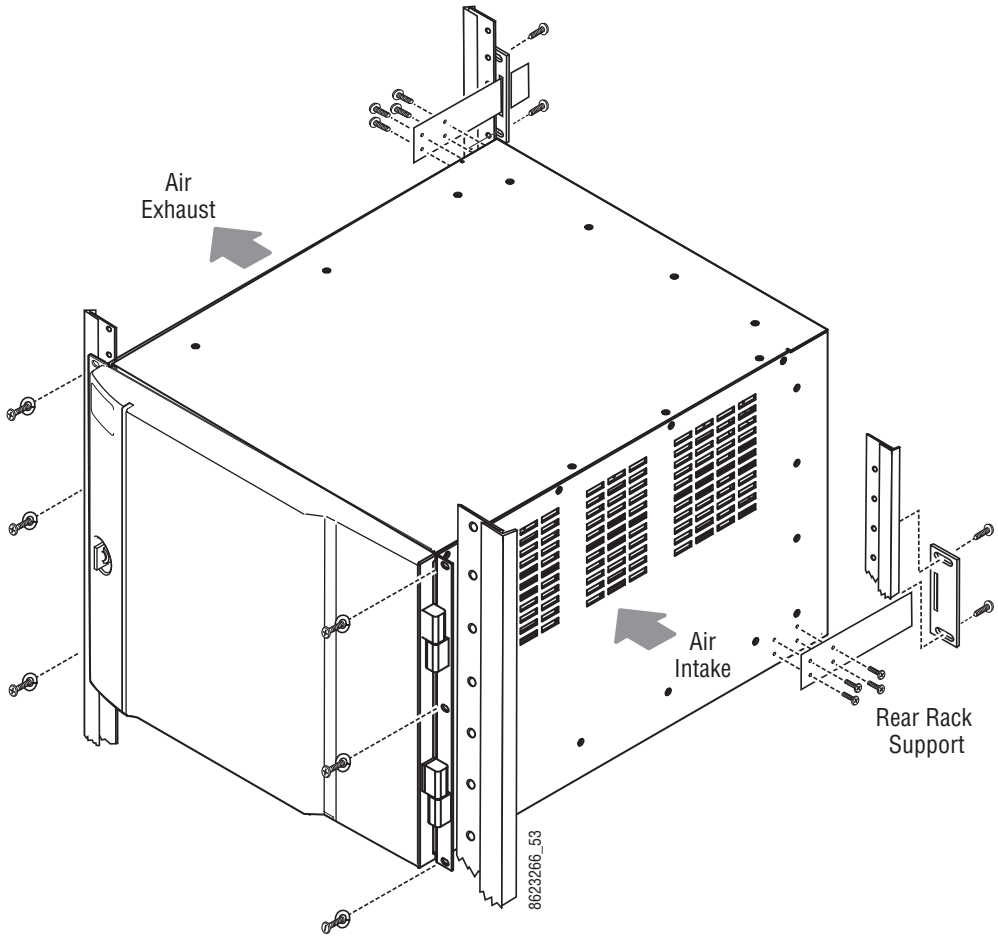


Figure 70. Kayenne 8-RU and 4-RU Frame Dimensions (Top View)



8-RU Frame Rack Mounting

Figure 71. Kayenne 8-RU Frame Rack Mounting and Cooling Airflow



CAUTION Kayenne Frames (8-RU, 4-RU, and PCU) installations require the use of the provided rear rack supports.

Air intake holes exist on the right side of the frame (as you face the frame front) and air exhaust holes are on the left. Make sure adequate ventilation is provided for the Kayenne Frame. Do not block ventilation holes, which could make the frame overheat.

Door Removal Clearance

CAUTION Mounting a Kayenne Frame in a rack immediately below equipment that extends forward from the rack may not provide enough clearance to completely remove the Kayenne door.

The Kayenne frame door should be able to be completely removed when installed in a rack immediately below conventional flush mounted rack-ear only equipment.

If the chassis is mounted immediately below equipment that extends forward from the rack (for example, under another Kayenne frame), extra space must be reserved to be able to remove the front door. The door lifts off its hinges vertically and for the 8-RU frames 23.7 mm (0.93-in.) of clearance is required to completely remove the door. A flush design 1 RU blank filler panel can be used for clearance, if required.

8-RU Frame Connectors

Figure 72. Kayenne 8-RU Frame, Front View with Door Removed

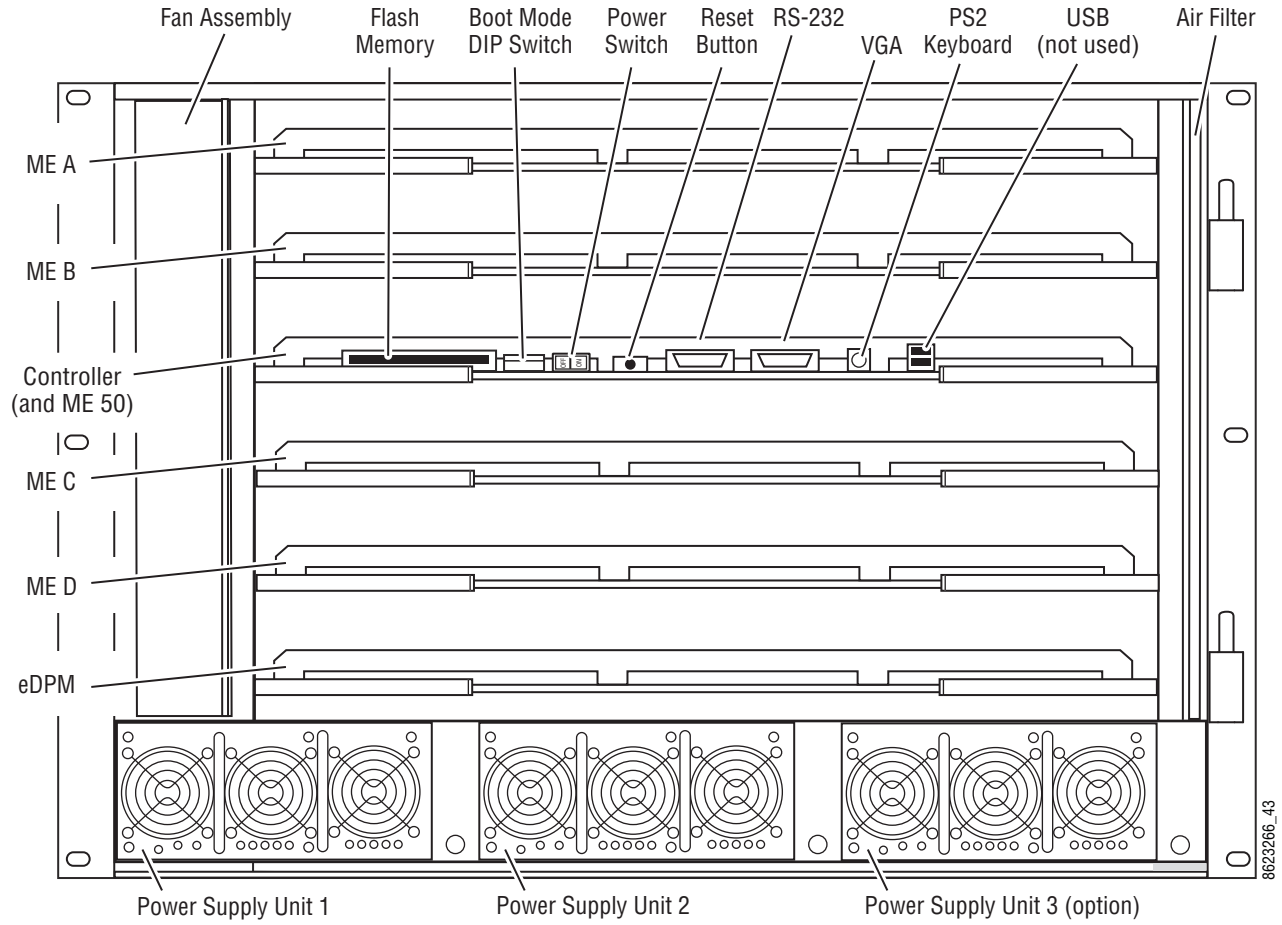
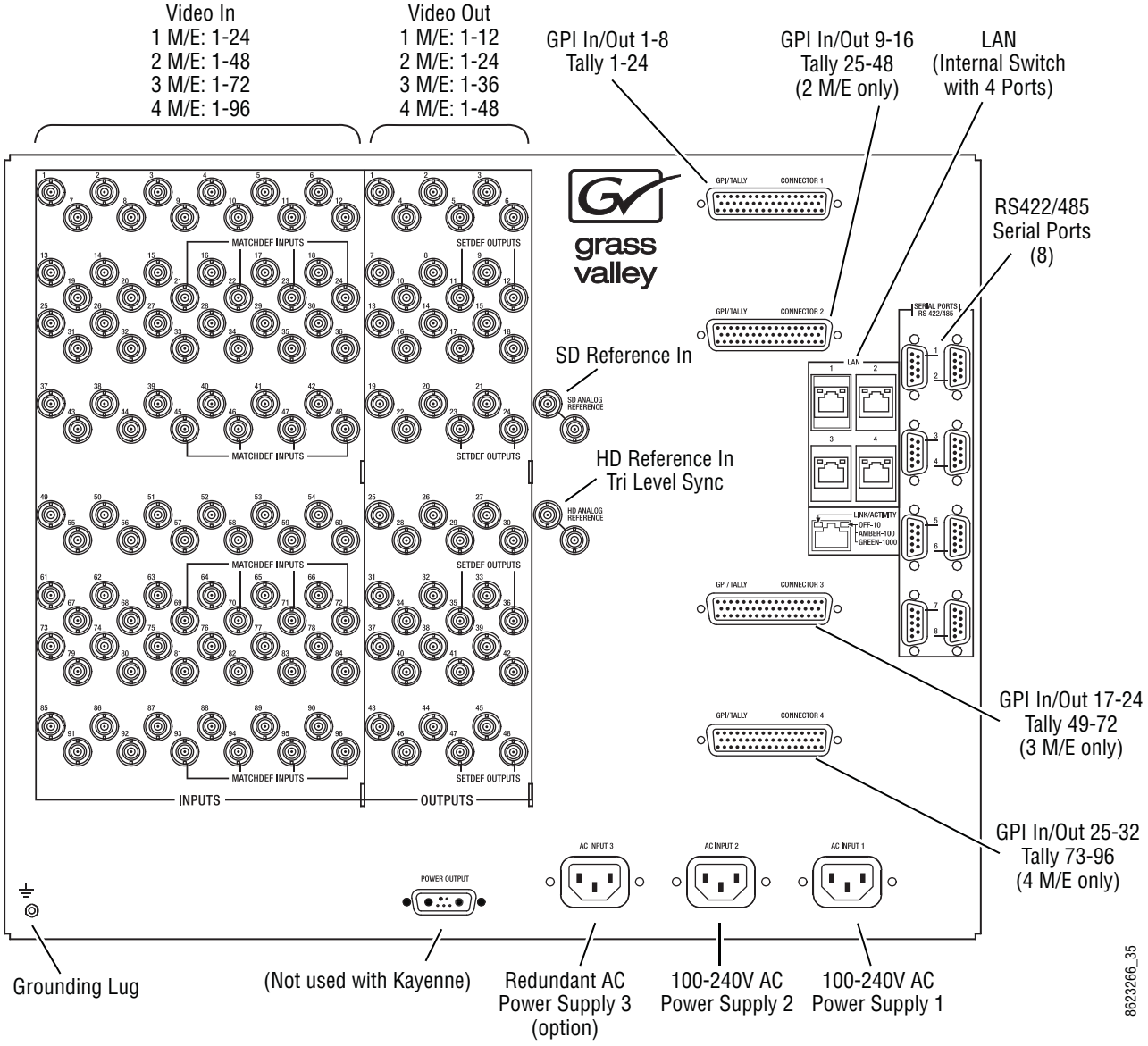


Figure 73. Kayenne 8-RU Frame, Backplane View



8-RU Frame Power Supplies

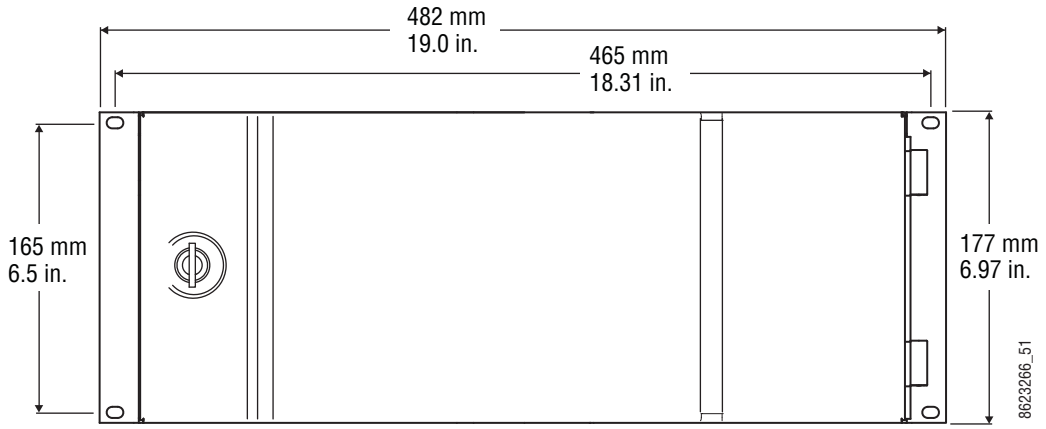
The 8-RU Kayenne Video Processor Frame has two power supplies standard. A minimum of two supplies are needed for 8-RU frame operation.

An additional power supply is available as an option for redundancy. It slides into the extra power supply slot in the chassis. When equipped with the redundant power supply option, the frame will continue to operate without interruption should a single power supply fail.

Kayenne 4-RU Video Processor Frame Installation

4-RU Frame Dimensions

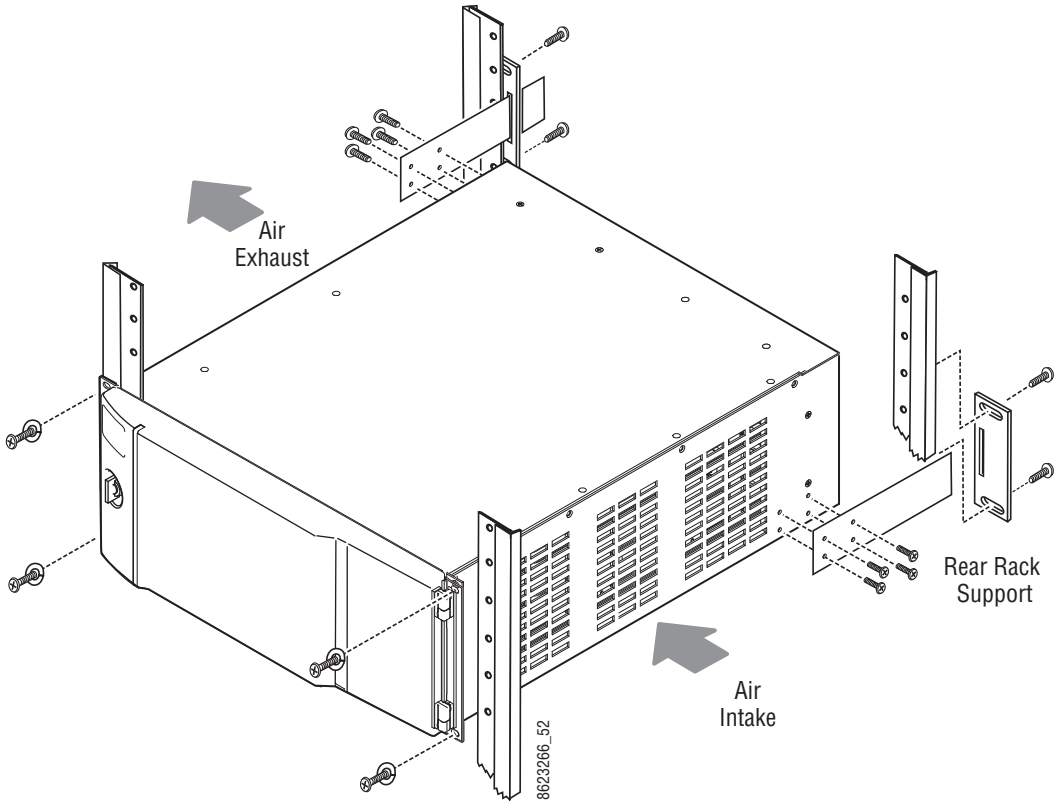
Figure 74. Kayenne 4-RU Frame Dimensions (Front View)



The top view dimensions of the Kayenne 4-RU Frame are the same as the 8-RU Frame, except there are only two AC line cord retainers (see Figure 70 on page 99).

4-RU Frame Rack Mounting

Figure 75. Kayenne 4-RU Frame Rack Installation and Cooling Airflow



CAUTION Kayenne Frame (8-RU, 4-RU, and PCU) installations require the use of the provided rear rack supports.

Air intake holes exist on the right side of the frame (as you face the frame front) and air exhaust holes are on the left. Make sure adequate ventilation is provided for the Kayenne Frame. Do not block any ventilation holes, which could make the frame overheat.

Door Removal Clearance

CAUTION Mounting a Kayenne Frame in a rack immediately below equipment that extends forward from the rack may not provide enough clearance to completely remove the Kayenne door.

The Kayenne frame door should be able to be completely removed when installed in a rack immediately below conventional flush mounted rack-ear only equipment.

If the chassis is mounted immediately below equipment that extends forward from the rack (for example, under another Kayenne frame), extra space must be reserved to be able to remove the front door. The door lifts

off its hinges vertically and for the 4-RU and PCU frames 7.7 mm (0.3 in.) of clearance is required to completely remove the door. A flush design 1 RU blank filler panel can be used for clearance, if required.

4-RU Frame Connectors

Figure 76. Kayenne 4-RU Frame, Front View with Door Removed

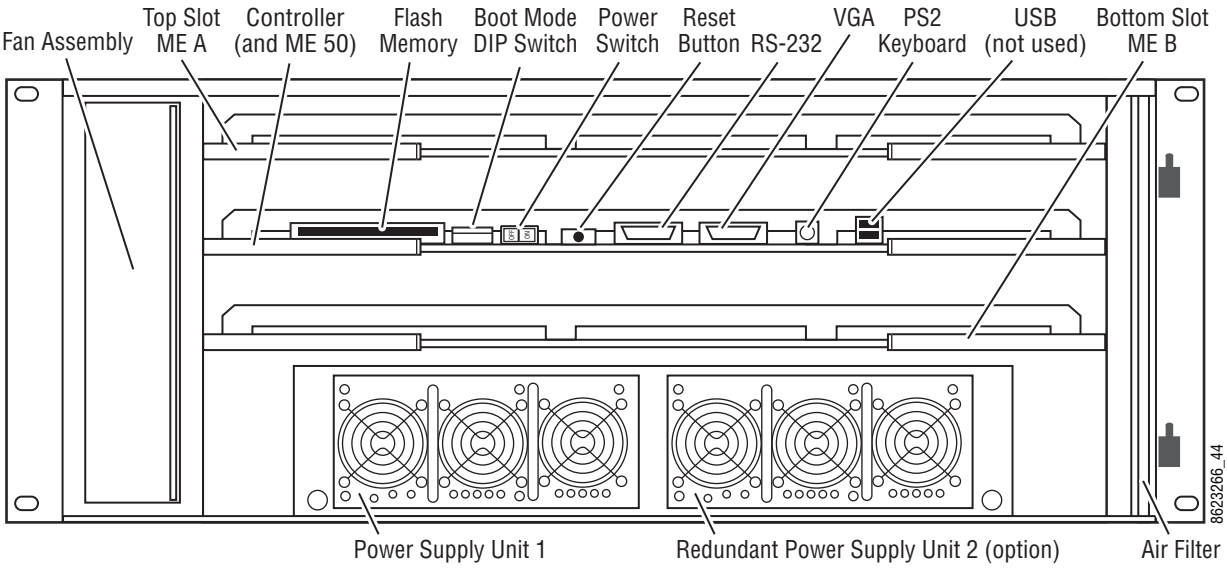
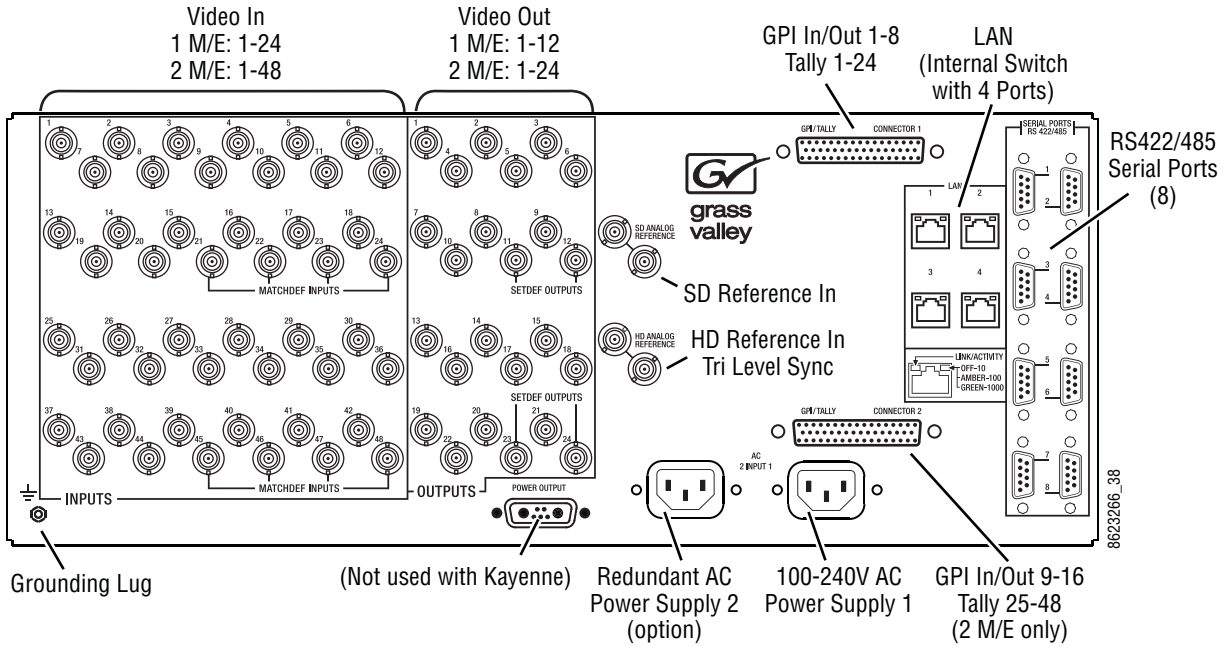


Figure 77. Kayenne 4-RU Frame, Backplane View



4-RU Frame Power Supplies

The 4-RU Kayenne Video Processor Frame has one power supply standard.

An additional power supply is available as an option for redundancy. It slides into the extra power supply slot in the chassis. When equipped with the redundant power supply option, the frame will continue to operate without interruption should a single power supply fail.

Panel Control Unit (PCU) Installation

PCU Dimensions

Figure 78. Panel Control Unit Dimension (Front View)

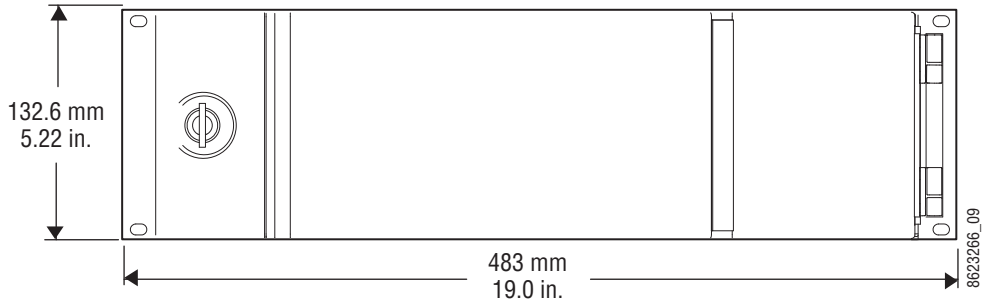
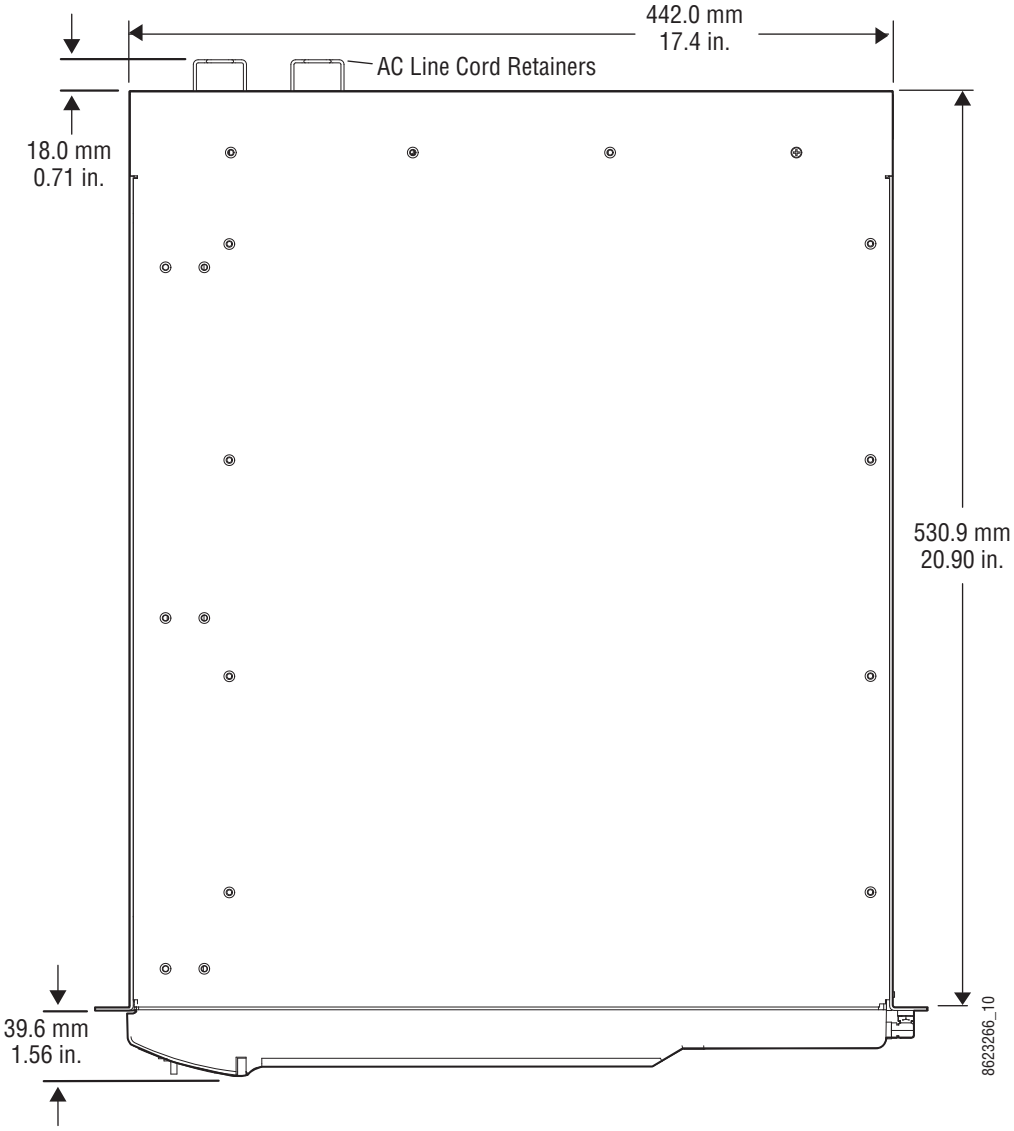
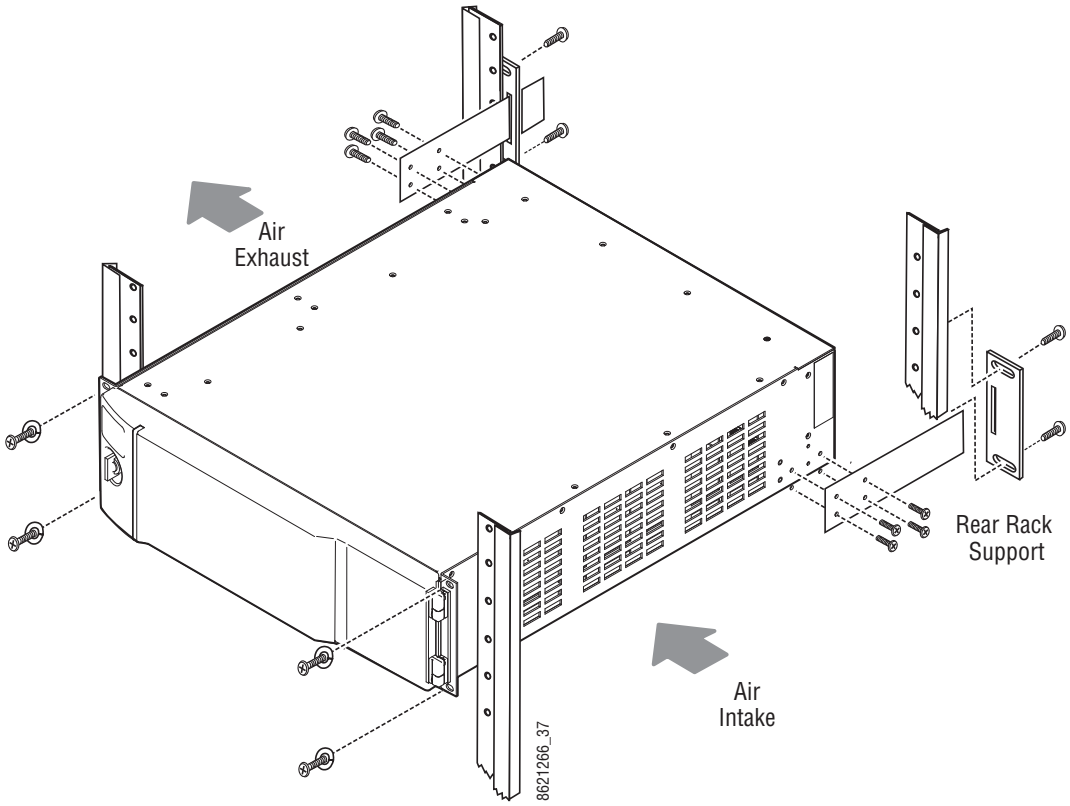


Figure 79. Panel Control Unit Dimensions (Top View)



PCU Frame Rack Mounting

Figure 80. Panel Control Unit Rack Installation and Cooling Airflow



CAUTION Kayenne Frames (8-RU, 4-RU, and PCU) installations require the use of the provided rear rack supports.

Air intake holes exist on the right side of the frame (as you face the frame front) and air exhaust holes on the left. Make sure to provide adequate ventilation for the Kayenne Frame. Do not block any ventilation holes, which can prevent cooling air from reaching the frame and cause it to overheat.

Door Removal Clearance

CAUTION Mounting a Kayenne Frame in a rack immediately below equipment that extends forward from the rack may not provide enough clearance to completely remove the Kayenne door.

The Kayenne frame door should be able to be completely removed when installed in a rack immediately below conventional flush mounted rack-ear only equipment.

If the chassis is mounted immediately below equipment that extends forward from the rack (for example, under another Kayenne frame), extra space must be reserved to be able to remove the front door. The door lifts

off its hinges vertically and for the 4-RU and PCU frames 7.7 mm (0.3-in.) of clearance is required to completely remove the door. A flush design 1 RU blank filler panel can be used for clearance, if required.

PCU Connectors

Figure 81. Panel Control Unit, Front View with Door Removed

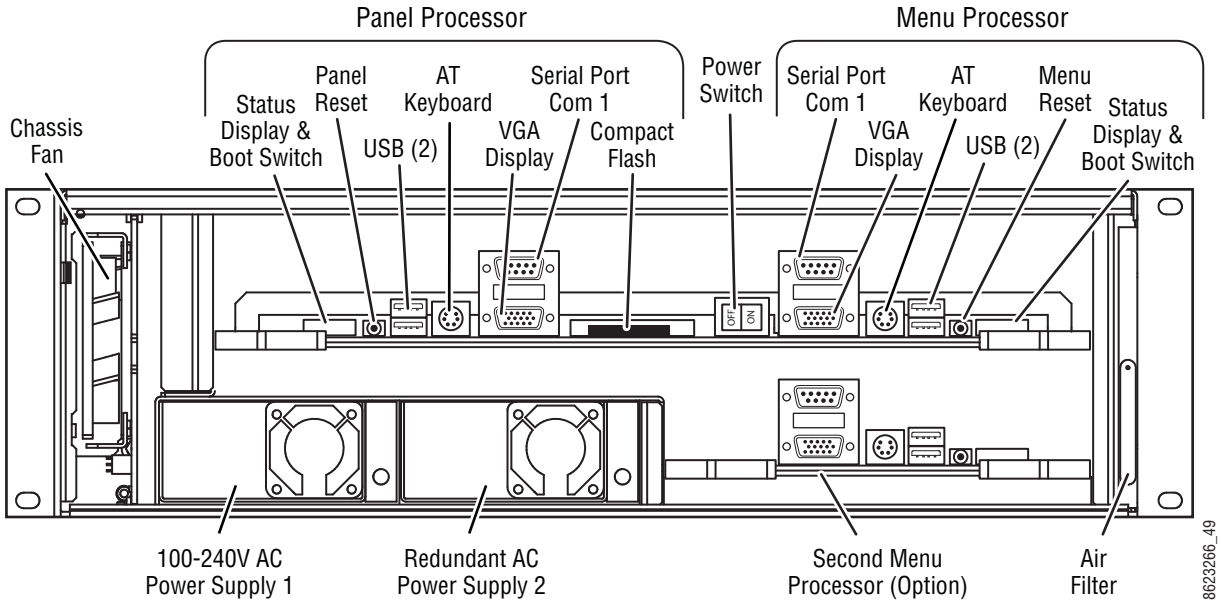
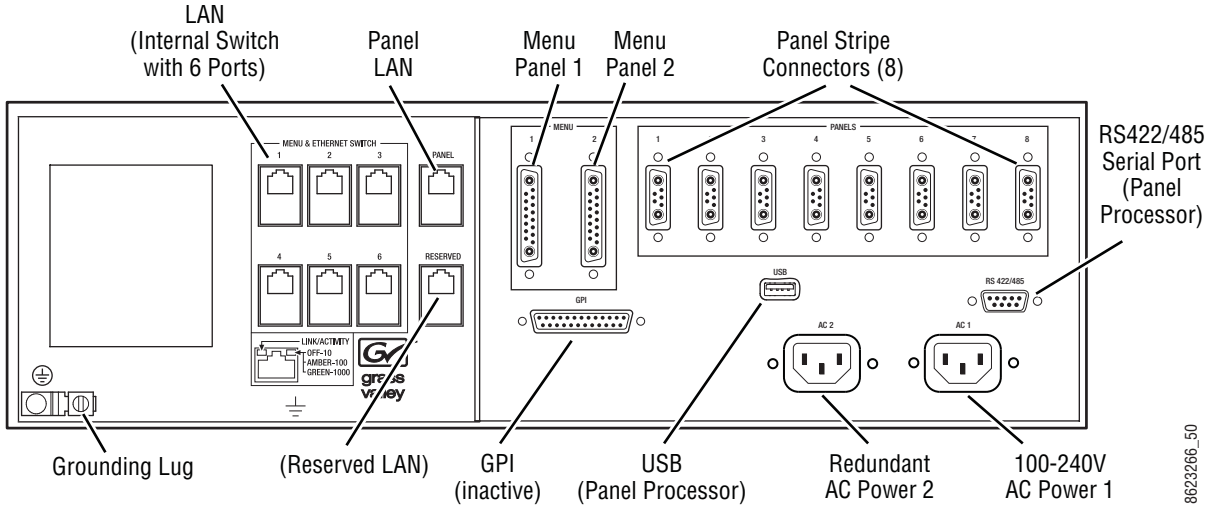


Figure 82. Panel Control Unit, Backplane View



CAUTION Do not connect or disconnect the multi-pin cables linking a PCU to a Menu Panel or Control Panel Stripe while the PCU is powered up. Damage to the Kayenne equipment can result.

The Kayenne system uses a Panel Control Unit (PCU). This 3RU rack-mount frame powers the Control Panel and Touch Screen Menu Panel(s), and houses the processors for these devices. The PCU has one processor for the Control Panel, and another processor for the standard Touch Screen Menu Panel. An additional Menu Panel processor is available as an option.

The PCU has an internal Ethernet switch, used for Menu Panel processor communications. Six Ethernet ports are available on the back. Two ports are used internally for the Menu Panels. An additional Ethernet port is used for Control Panel processor communications.

PCU Power Supplies

The Kayenne PCU frame has two power supplies standard. The frame will continue to operate without interruption should a single power supply fail.

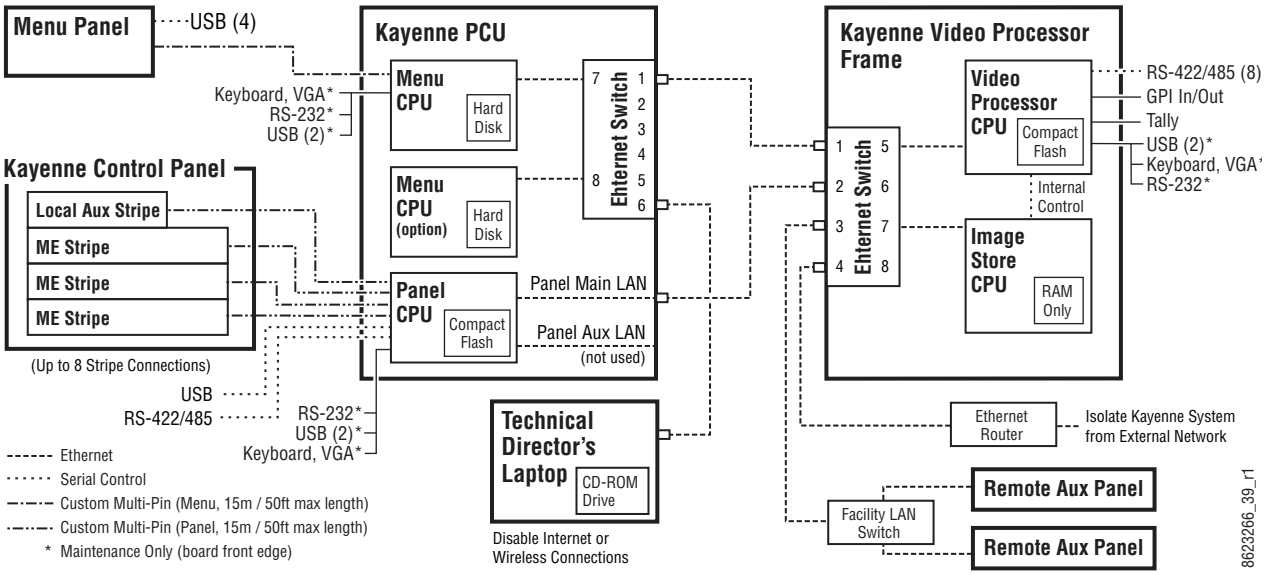
Section 5

System Cabling

Overview

The Kayenne system uses Ethernet, serial, and USB connections. Custom multi-pin cabling is also used to connect the Kayenne Panel Control Unit (PCU) to Kayenne control surface and Menu Panel components. The Kayenne Video Processor Frame and PCU each have built-in Ethernet switches. Tally outputs and GPI I/O (General Purpose Interface Input/Output) control is also available (Figure 83).

Figure 83. Kayenne System Communications Overview



CAUTION The facility network used for your Kayenne system (and other video production equipment) should be kept separate from any external network, to prevent network traffic from adversely affecting Kayenne system operation.

Kayenne system power is provided by power supplies built into the Kayenne Video Processor Frame and Kayenne PCU. Power is routed to Kayenne control surface components and Menu Panels from the PCU through the custom multi-pin cabling. Additional Frame and PCU power supplies are available for redundancy.

Serial digital video and key input and output signals are connected to the Kayenne Video Processor Frame. Specified MatchDef Input pair and SetDef Output pair connectors on the Frame can be used for internal format conversion (an optional feature). Separate Video Reference inputs are available for HD and SD formats.

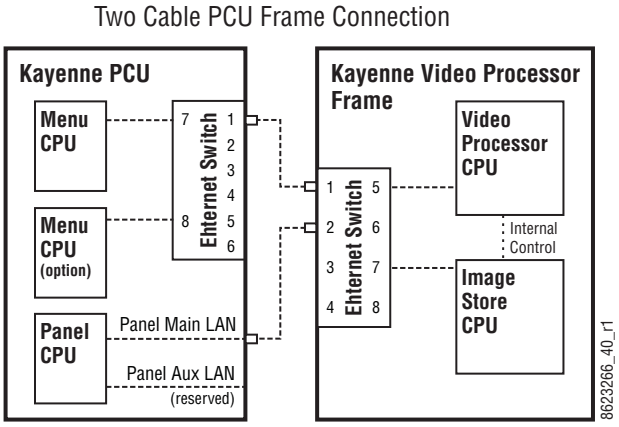
Network Cabling

Network connections are required between the Kayenne Video Processor Frame and the PCU. The PCU routes network communications to and from the Control Panel Stripes and Menu Panels, using custom multi-pin cables.

The Ethernet switches built into the Kayenne Frame and PCU auto-detect speed and polarity, and are 10/100/1000 Mbps capable. Either straight-through or crossover Ethernet cabling can be used. Available Ethernet connectors may be connected to the Facility LAN or other devices, as needed. However, should the Kayenne Frame or PCU power down, the internal Ethernet switches will also power down, interrupting communication to devices connected to that Frame's or PCU's internal Ethernet switches. Only connect devices that are Kayenne system related.

The use of two Ethernet cables to connect the PCU to the Frame is recommended (Figure 84).

Figure 84. PCU to Frame Network Connection Methods



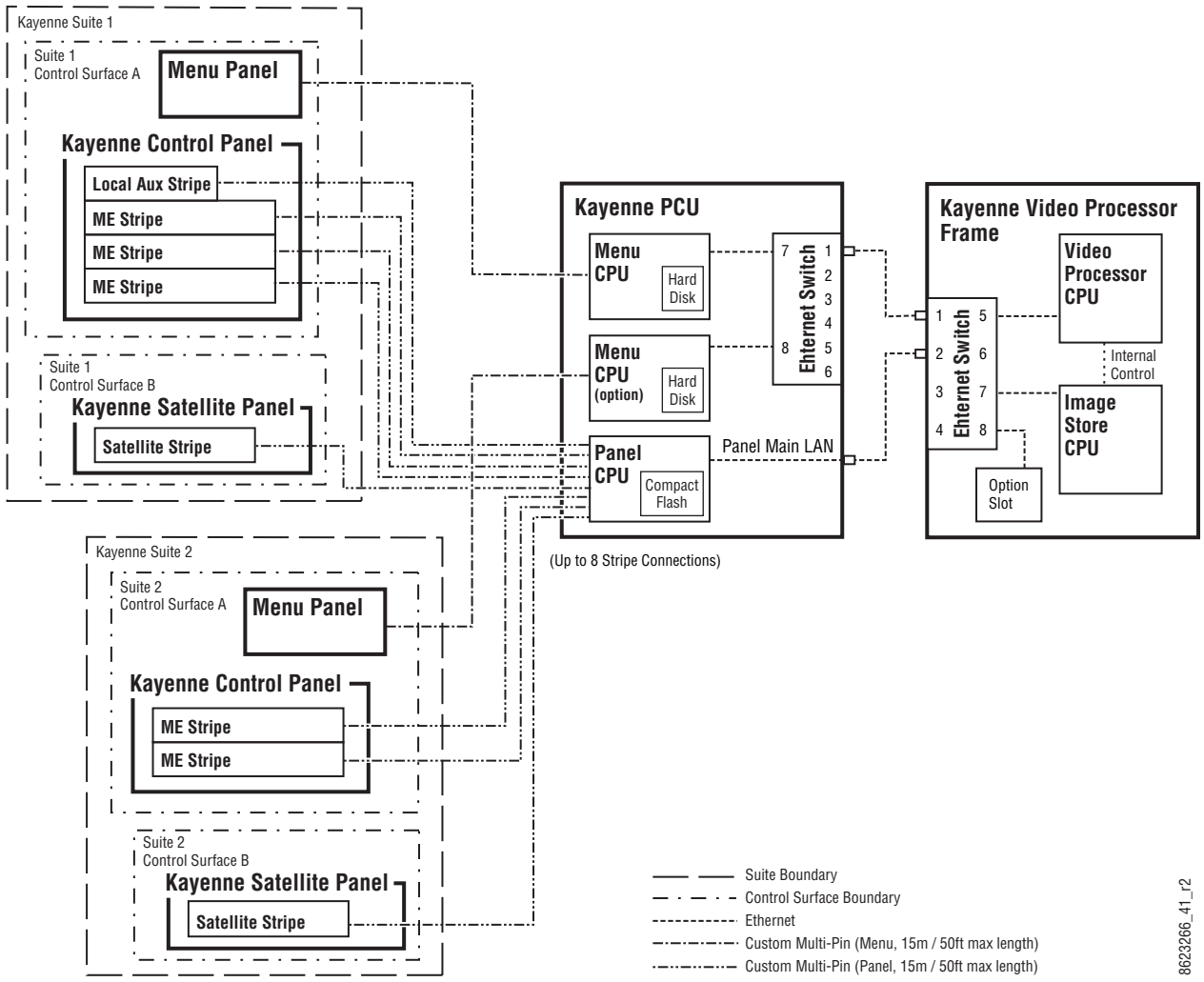
The PCU Ethernet switch to Frame Ethernet switch cable connection is used for Menu Panel communications. The second cable connects the Panel PCU directly to the Frame's Ethernet switch. Using two cables provides additional Ethernet communications throughput (to support Image Store file operations) and also offers redundancy. Because the Menu Panel and the Control Panel have independent cable connections, failure of one of these cables will not completely disable the Kayenne system. Either the Menu Panel or the Control Panel will remain operational after a single network cable failure.

Suites and Control Surfaces

A Kayenne system can be divided into two suites. Kayenne system resources (MEs, eDPMs, external devices, etc.) can be assigned to each suite, creating two switchers with one Kayenne system. Each suite can be subdivided into two control surfaces. Each control surface is intended for use by a single operator. The Kayenne Control Panel system flexibility permits locating these control surfaces in physically separate locations.

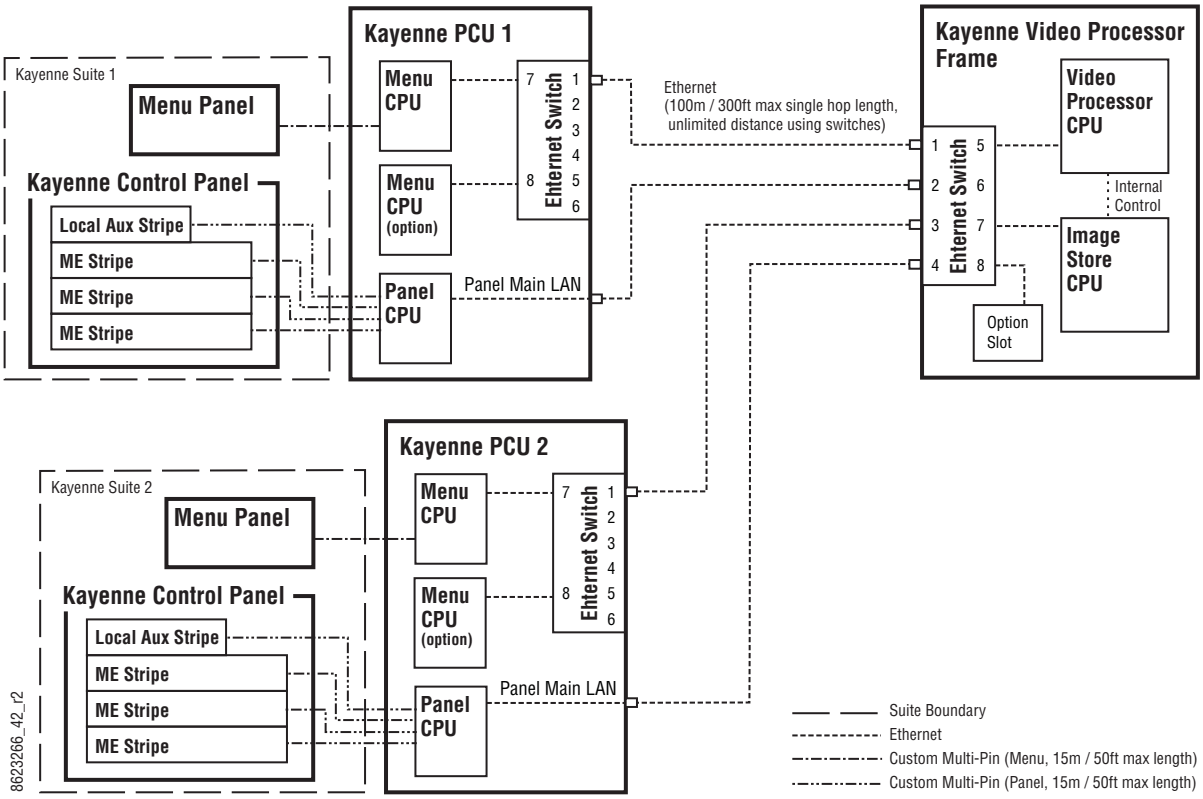
Custom multi-pin cable runs are limited to 15 meters (50 ft.) If this length is sufficient, a single PCU can be used for an entire multi-suite Kayenne system (Figure 85).

Figure 85. Two Suites with Two Control Surfaces Using One PCU



Using a second PCU, Kayenne suites can be located anywhere on the network, permitting system control from different rooms, floors, or even different buildings (Figure 86).

Figure 86. Two Suites Using Two PCUs



Customer Supplied Ethernet Routers and Switches

Existing facility Ethernet switches can be used in conjunction with a Kayenne system. If connecting to a network area outside that used by the Kayenne system, use of an appropriately configured Ethernet Router is strongly advised. This reduces network traffic on the Kayenne network and keeps it isolated. Any Ethernet switches added specifically for use with the Kayenne system should be 1000 Mbps capable for the most efficient operation (see Table 3).

Table 3. Ethernet Specifications

Cables	**Type**	10BaseT, 100BaseT, 1000BaseT compatible. Category 5 cable, 8 conductor twisted pair. The system will work at lower ratings with reduced performance. 1000BaseT components are highly recommended.
	Connectors	RJ-45 male connector at each end of cable.
	Length	100BaseT, 1000BaseT: 328 ft. (100 m) maximum. 10BaseT: 984 ft. (300 m) maximum. Use additional switches to exceed maximum cable runs.
Switch	**Speed**	10/100/1000 Mbps
	Ports	RJ-45 auto-negotiating 10/100/1000 Mbps; number of ports required is dependent upon system size. Frame and PCU ports are capable of 1000 Mbps. Using a 1000 Mbps Ethernet switch enhances Image Store transfer speeds.
	Unmanaged	Recommended. Configuration not required, but does not provide remote monitoring capability.
	Managed	May be used. Requires configuration, but offers remote monitoring capability.

Factory Default Network Settings

Table 4. Kayenne System Default IP Addresses

Device	IP Address
Video Processor Frame CPU	192.168.0.170
Image Store CPU	192.168.0.171
Control Panel Surface 1A	192.168.0.173
Touch Screen Menu Panel 1	192.168.0.175
Touch Screen Menu Panel 2	192.168.0.176
Control Panel Surface 1B	192.168.0.177
Control Panel Surface 2A	192.168.0.178
Control Panel Surface 2B	192.168.0.179
32-Crosspoint Remote Aux Panels V1.6.5 and higher software: (hard reset with the front panel buttons)	IP Address: 192.168.1.2 Frame IP: 192.168.1.1 Gateway IP: 192.168.1.1 Subnet Mask 255.255.255.0 **Note** 32-Crosspoint Remote Aux Panel default settings must be changed to operate with a Kayenne system whose other components are configured with their default IP addresses.
All Subnet Masks)	255.255.255.0
All Gateways (except V1.6.5 software Remote Aux panel)	192.168.0.1
Reserved For Future Use	**CAUTION** Do not connect any devices configured with the following IP addresses to a Kayenne network.
Video Processor Frame Gigabit Ethernet	**192.168.0.172**
PCU Panel Reserved LAN Port	**192.168.0.174**

To integrate Kayenne devices into an existing network, ask the local network administrator for that network's subnet mask. Before changing IP addresses always set the subnet masks of the Kayenne devices to the mask of the local network.

Control Surface Cabling

Connectors on the outside bottom of the Control Panel tray connect to numbered ports on the PCU, using special multi-pin cables that carry both power and communications signals. Special cables are also used to connect the Menu Panels to the PCU.

CAUTION Do not connect or disconnect the multi-pin cables linking a Kayenne Control Panel tray or Menu Panel to the PCU while the PCU is powered up. Damage to the Kayenne equipment can result.

ME and Local Aux Stripe Connections

It is recommended that the PCU numbered ports be connected to Control Panel Stripes in ascending ME order, followed by the Local Aux Stripe. PCU port connections can be re-mapped, but this order matches the default configuration. The table below shows the connections for various Kayenne Control Panel models used in a single suite.

Table 5. PCU Port to Control Panel Stripe Connections, Single Suite

Control Panel Model	PCU Port	Panel Stripe
4-ME with Local Aux	1	ME 1 (top ME)
	2	ME 2 (second ME)
	3	ME 3 (third ME)
	4	ME 4 (bottom ME)
	5	Local Aux Stripe
3-ME with Local Aux	1	ME 1 (top ME)
	2	ME 2 (second ME)
	3	ME 3 (bottom ME)
	4	Local Aux Stripe
2-ME with Local Aux	1	ME 1 (top ME)
	2	ME 2 (bottom ME)
	3	Local Aux Stripe
1-ME (no Local Aux)	2	Master EMEM, MFM (top tray)
	1	ME (bottom tray)

Touch Screen Menu Panels (Used with PCU)

Connect a single or primary Menu Panel to the PUC **Menu 1** connector, using the supplied custom multi-pin cable. Connect an optional second Menu Panel to the **Menu 2** connector. Menu Panels are assigned to suites during Kayenne system configuration.

Video Cabling

All Kayenne system video inputs and outputs are configurable. For cabling configuration flexibility, each external primary input can be mapped to any Kayenne panel source select button, as can each internal video system source. Any Kayenne system video signal, such as ME program, preview, clean feed, or PGM/PST, can be mapped to any output bus to be sent to any output connector, or an output bus can act as an auxiliary bus.

Inputs

Non-looping video inputs on the back of the Video Processor Frame are numbered 1 through 48 on the 4-RU frame, and 1 through 96 on the 8-RU frame. Each accepts a 270 MHz or 1.485 Gb serial digital video signal. The number of inputs that are active depends on the number of ME boards installed in the chassis. Twenty four inputs are active for every board installed.

Outputs

The outputs on the back of the Video Processor Frame are numbered 1 through 24 on the 4-RU frame, and 1 through 48 on the 8-RU frame. All of the outputs carry the same video format, as determined by the standard selected and by the reference signals connected. The number of outputs that are active depends on the number of ME boards installed in the chassis. Twelve outputs are active for every board installed.

MatchDef and SetDef Format Conversion

The four highest numbered input connectors associated with each installed ME board can be used with the optional MatchDef format conversion feature (inputs 21-24, 45-48, 69-72, 93-96). The two highest numbered output connectors associated with each installed ME board can be used with the optional SetDef format conversion feature (outputs 11-12, 23-24, 35-36, 47-48). 525, 625, 1080i and 720p line rate signal format conversion is supported.

Reference Input

The Kayenne Video Processor Frame has two separate, looping reference input pairs. The upper pair accepts analog 525 or 625 composite video. Burst is not required, but typically facility reference color black is used. Kayenne can auto-sense whether the reference is 525 or 625 and can change the internal standard accordingly. The lower looping reference input pair is for HD production and uses analog tri-level sync.

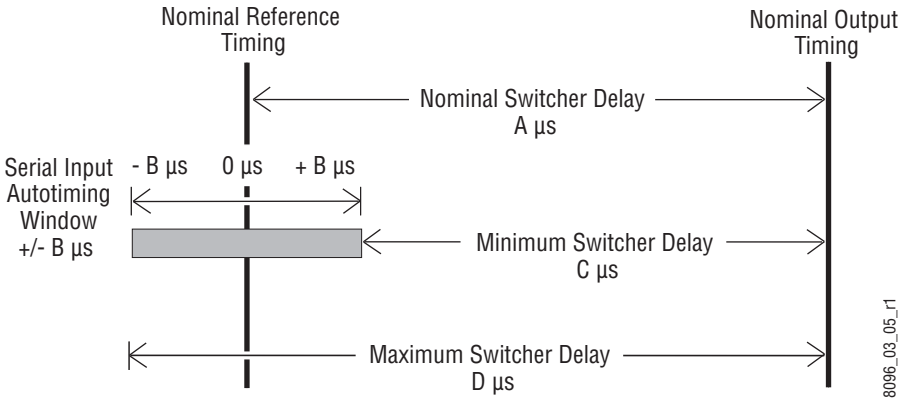
75-ohm termination of one of each of these looping inputs is required, either directly on the adjacent connector or at the end of a daisy chain looping to other equipment. Any one of the SDI inputs can also be used temporarily as reference in the respective standard.

CAUTION Kayenne HD operation requires tri-level sync. Using an HD SDI source for sync purposes is not recommended, except for temporary troubleshooting.

Kayenne System Video Timing and Delay

The total delay of a video input to the switcher output can vary according to the relationship of the input to the switcher reference. The switcher will automatically autotime inputs that fall within an autotiming window. Inputs must be within this range to be properly timed at the output. The calculation of the actual video delay of a specific input is the Nominal Switcher Delay minus the input time location within the autotiming window (the time location value can be zero, positive, or negative). A timing diagram of the input autotiming window and various switcher delay values is provided in Figure 87.

Figure 87. Switcher Timing Diagram



- For inputs entering the switcher in zero time with the reference, the total delay through the switcher is the Nominal Switcher Delay (A µs).
- Inputs that reach the switcher at the latest point in the autotiming window (+B µs) will have a total delay that equals the time required for switcher processing. This value is the Minimum Switcher Delay (C µs).
- Inputs that reach the switcher at the earliest point in the autotiming window (-B µs) will have a total delay equal to the Nominal Switcher Delay (A µs) plus the autotiming window range. This value is the Maximum Switcher Delay value (D µs).

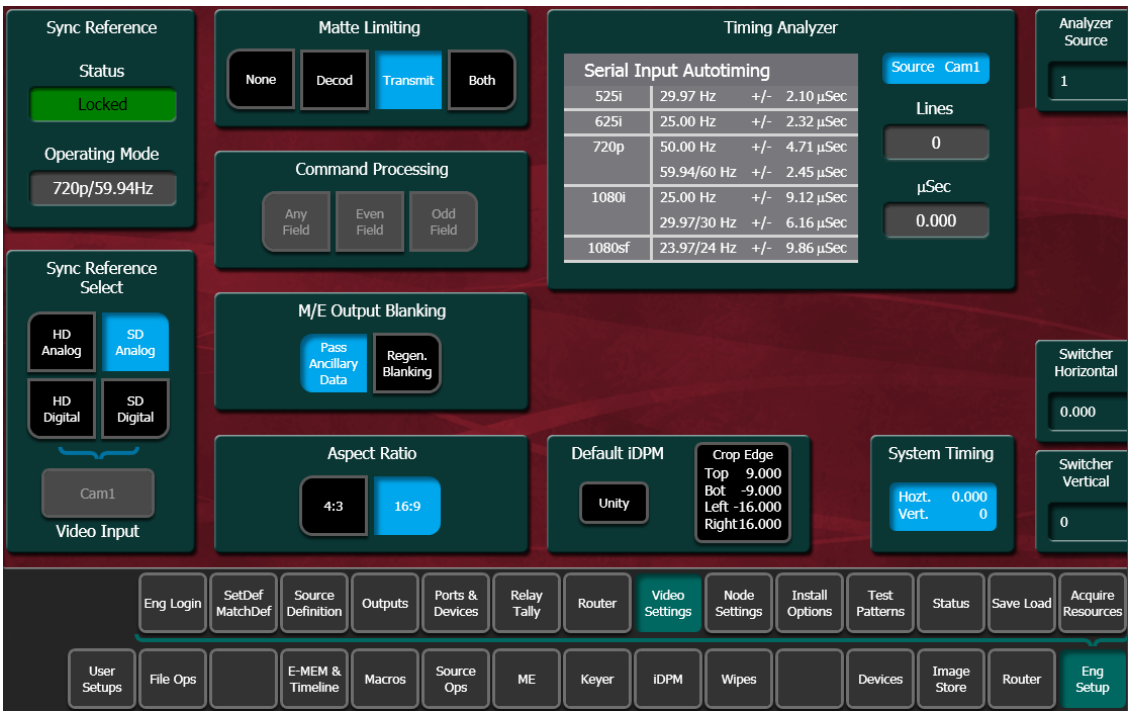
On Kayenne systems the autotiming window varies depending on the operating mode. The Timing Analyzer in the Video Settings Menu displays this autotiming information (Figure 88 on page 120). Also see Table 25 on page 282 for more detailed information.

Note The maximum switcher delay is approximately one line of video.

Timing Analyzer

The Sync/Timing menu on Kayenne systems (accessed via **Eng Setup**, **Video Settings**) has a Timing Analyzer pane (Figure 88), which can help when timing the system.

Figure 88. Video Settings Menu,



This analyzer reports the timing position of a selected source relative to the Kayenne internal sync generator. The source is selected with the upper right **Analyzer Source** soft knob and data pad. The relative position of that source is reported in lines and µs. Positive values indicate the source is later in time than the internal sync generator, and negative values indicate the source is earlier.

Kayenne systems have an autotiming window. Sources that fall within that window will be properly timed throughout the Kayenne system, even if the signal is cascaded through multiple MEs.

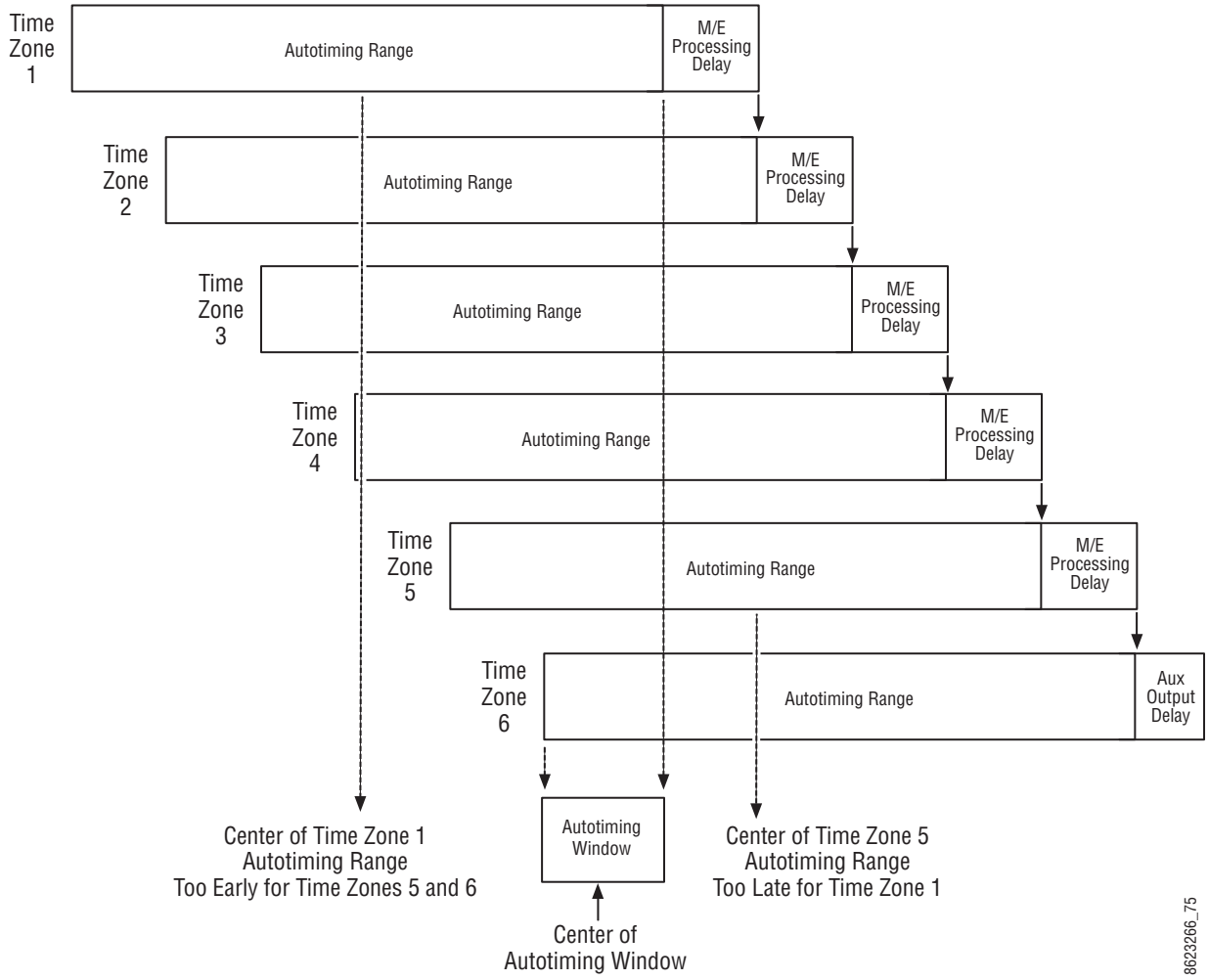
The **Switcher Horizontal** and **Switcher Vertical** soft knobs adjust the timing of the Kayenne system relative to the incoming reference. These values are generally best left at zero.

Time Zones and the Autotiming Window

Each ME has a fixed amount of delay from its input to output. To allow reentries to remain in time, ME timings are staggered such that the up stream ME outputs are in time (or earlier) than down stream ME inputs. A

4-1/2 ME production switcher has six time zones to accommodate reentry through all the MEs to any output (Figure 89). When all MEs are cascaded into each other, the most up stream ME is in the earliest time zone. Aux buses and other outputs are always in the latest time zone. The overlapping range of all the autotimers is the published autotiming window for the switcher.

Figure 89. Production Switcher Time Zones



Any source fed to the switcher must be within the autotiming range of all six time zones. If not, the source will be in time on some MEs but not on others. As illustrated in the figure, a source centered in one time zone's autotiming range can be too early or late for other switcher time zones.

Video Processor Frame GPI/Tally Interface

The GPI (General Purpose Interface) and tally interface provides a means to transfer commands to and from the switcher to external customer provided equipment. A one wire per function parallel hardware relay mechanism is used. The nominal contact rating specification for each relay is 1A, 60 V.

Note A serial tally interface that communicates with third party devices over a Video Processor Frame RS422 connector is also available. Refer to the separate *Switcher Products Protocols Manual* for specific information.

GPI and Tally Connections

The Kayenne 4-RU Video Processor Frame has two 50 pin female subminiature D connectors on the rear of the chassis, available for GPI and tally. The 8-RU Frame has four connectors. Each connector is activated by the presence of an ME module installed in the frame, providing up to four connectors on a four ME system.

Each 50 pin connector has 8 GPI Inputs, 24 Tally Outputs, and 8 GPI Outputs. These four connectors do not share any signals in common, other than ground reference and chassis ground. Because of this, some GPI/Tally interconnects may require external common connections between connectors, as explained below.

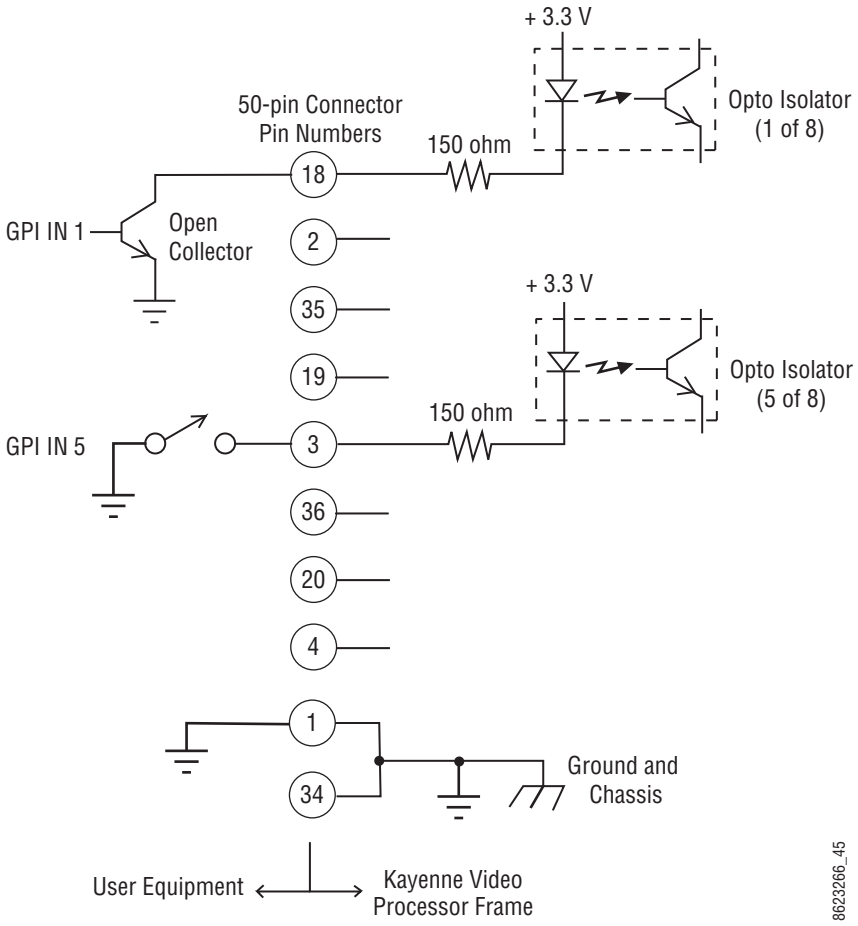
GPI Inputs

The purpose of the GPI In pins is to provide a stimulus from the customer's equipment to the switcher. A simple connection of two pins activates the corresponding input. An external relay contact or an open-collector output can be employed.

CAUTION When connecting to an open-collector output, there is no ground potential isolation between the Video Processor Frame and controlling devices.

Since the circuit ground is led out of the device, cabling should be shielded for this kind of control. Non-shielded cables may cause EMC and/or ESD problems. To activate a GPI In you must provide switch closure between a particular GPI In pin and one of the two GPI In Com pins (1 and 34). Pins 1 and 34 of each connector is connected to ground (Figure 90). For applications that span across more than one connector, only one ground (common) connection is required.

Figure 90. GPI Input Connections (Typical 2 of 8 Connections)

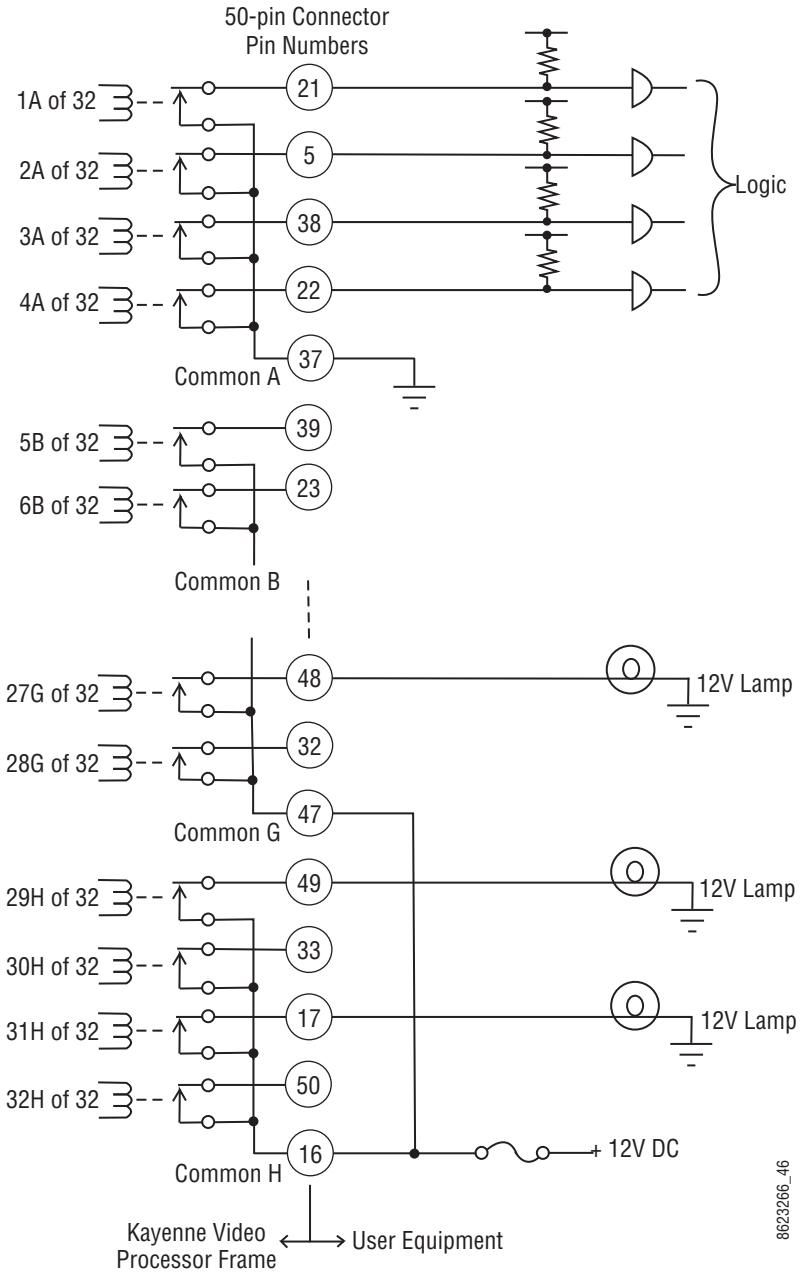


The function of each GPI input is user assignable. A function can be programmed to occur on the leading edge or the trailing edge of the closure, or both edges. The switch must be closed for at least one field.

Tally/GPI Outputs

Tally and GPI Outputs are arranged in groups of four. Each group has its own common connection. These commons can all be tied together, forming one common bus for all the outputs. Alternatively, multiple smaller commons can be constructed to interface with systems that need isolated common connections. This common or isolated bus scheme can extend across multiple connectors. For example, a situation may require two isolated common busses, half of the commons form the first common bus and the other half form the second common bus.

Figure 91. Tally and GPI Output Connection Example



The example shown in Figure 91 illustrates two common busses. The first four outputs (COMMON A) have the common bus tied to ground. This drives a logic system. The last outputs (COMMON G and COMMON H) have the common bus tied to +12 volts. This drives a tally lamp system.

Although diagram shows mechanical relays, the actual outputs are implemented with solid state relays. The solid state relays are bidirectional; either polarity voltage can be applied. If the switcher GPI/Tally outputs are used to drive downstream DC relays, be sure to install diodes across the relay coils to clamp inductive spikes. Shielded cable is recommended for the connection from the switcher to the user tally system.

Table 6. Tally and GPI Output Specifications

Maximum current for any one output	1 amp AC/DC
Maximum current for any one common	2 amp AC/DC
Maximum off (open circuit) voltage between output and common	60 Volts peak
Maximum voltage between any point and ground (chassis)	60 Volts peak

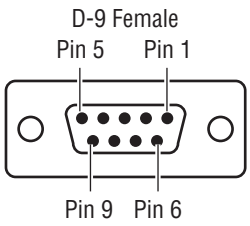
Pin Assignments

RS-422/485 Ports

Eight RS-422/485 ports are available on the rear of the Kayenne 8-RU and 4 RU Frames, and can be used to control various devices, or for switcher control by an external controller.

One RS-422/485 port is also located on the rear of the Kayenne PCU.

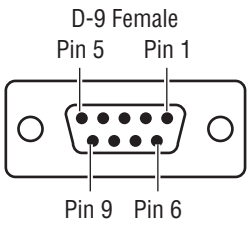
Table 7. RS-422/485 Pinouts

Socket	Pin	Bus Controller	Tributary
	1	Chassis Ground	Chassis Ground
	2	RxA (-)	TxA (-)
	3	TxB (+)	RxB (+)
	4	Signal Ground	Signal Ground
	5	Not used	Not used
	6	Signal Ground	Signal Ground
	7	RxB (+)	TxB (+)
	8	TxA (-)	RxA (-)
	9	Chassis Ground	Chassis Ground

RS-232 Ports

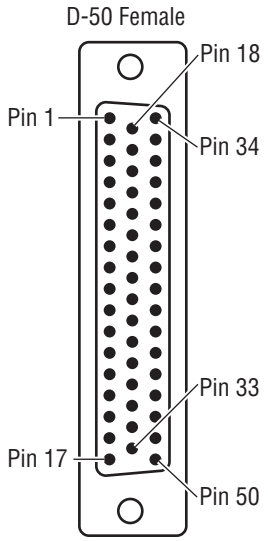
RS-232 serial ports are located on the front of each processor board (Video Processor, Panel Processor, Menu Processor), and are available for maintenance and diagnostics.

Table 8.

Socket	Pin	Signal
	1	Chassis Ground
	2	Transmit Data
	3	Receive Data
	4	Not used
	5	Signal Ground
	6	Not used
	7	Clear to Send
	8	Request to Send
	9	Not used

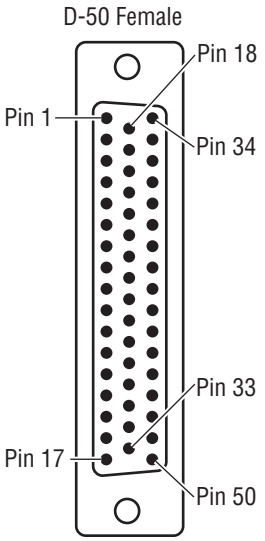
Standard VGA and keyboard ports are also available on all processor boards, and are also used for maintenance.

4-RU and 8-RU Frame (GPI In 1-8, Tally 1-24, GPI Out 1-8)



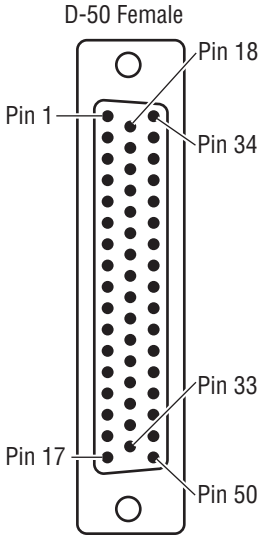
Socket	Ribbon Cable	50-Pin D-Sub			Signal
	1			1	GPIInCom
	2	34			GPIInCom
	3		18		GPIIn1
	4			2	GPIIn2
	5	35			GPIIn3
	6		19		GPIIn4
	7			3	GPIIn5
	8	36			GPIIn6
	9		20		GPIIn7
	10			4	GPIIn8
	11	37			TallyComA
	12		21		Tally1A
	13			5	Tally2A
	14	38			Tally3A
	15		22		Tally4A
	16			6	TallyComB
	17	39			Tally5B
	18		23		Tally6B
	19			7	Tally7B
	20	40			Tally8B
	21		24		TallyComC
	22			8	Tally9C
	23	41			Tally10C
	24		25		Tally11C
	25			9	Tally12C
	26	42			TallyComD
	27		26		Tally13D
	28			10	Tally14D
	29	43			Tally15D
	30		27		Tally16D
	31			11	TallyComE
	32	44			Tally17E
	33		28		Tally18E
	34			12	Tally19E
	35	45			Tally20E
	36		29		TallyComF
	37			13	Tally21F
	38	46			Tally22F
	39		30		Tally23F
	40			14	Tally24F
	41	47			GPIOutComG
	42		31		GPIOut1G
	43			15	GPIOut2G
	44	48			GPIOut3G
	45		32		GPIOut4G
	46			16	GPIOutComH
	47	49			GPIOut5H
	48		33		GPIOut6H
	49			17	GPIOut7H
	50	50			GPIOut8H

4-RU and 8-RU Frame (GPI In 9-16, Tally 25 - 48, GPI Out 9-16)



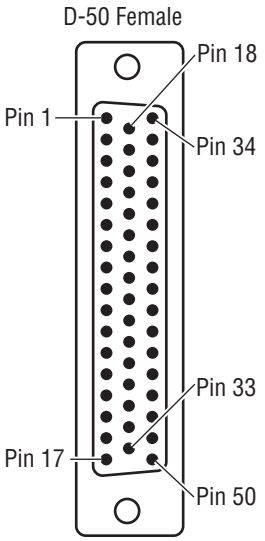
Socket	Ribbon Cable	50-Pin D-Sub			Signal
	1			1	GPIInCom
	2	34			GPIInCom
	3		18		GPIIn9
	4			2	GPIIn10
	5	35			GPIIn11
	6		19		GPIIn12
	7			3	GPIIn13
	8	36			GPIIn14
	9		20		GPIIn15
	10			4	GPIIn16
	11	37			TallyComJ
	12		21		Tally25J
	13			5	Tally26J
	14	38			Tally27J
	15		22		Tally28J
	16			6	TallyComK
	17	39			Tally29K
	18		23		Tally30K
	19			7	Tally31K
	20	40			Tally32K
	21		24		TallyComL
	22			8	Tally33L
	23	41			Tally34L
	24		25		Tally35L
	25			9	Tally36L
	26	42			TallyComM
	27		26		Tally37M
	28			10	Tally38M
	29	43			Tally39M
	30		27		Tally40M
	31			11	TallyComN
	32	44			Tally41N
	33		28		Tally42N
	34			12	Tally43N
	35	45			Tally44N
	36		29		TallyComP
	37			13	Tally45P
	38	46			Tally46P
	39		30		Tally47P
	40			14	Tally48P
	41	47			GPIOutComQ
	42		31		GPIOut9Q
	43			15	GPIOut10Q
	44	48			GPIOut11Q
	45		32		GPIOut12Q
	46			16	GPIOutComR
	47	49			GPIOut13R
	48		33		GPIOut14R
	49			17	GPIOut15R
	50	50			GPIOut16R

8-RU Frame (GPI In 17-24, Tally 49 - 72, GPI Out 17-24)



Socket	Ribbon Cable	50-Pin D-Sub			Signal
	1			1	GPIInCom
	2	34			GPIInCom
	3		18		GPIIn17
	4			2	GPIIn18
	5	35			GPIIn19
	6		19		GPIIn20
	7			3	GPIIn21
	8	36			GPIIn22
	9		20		GPIIn23
	10			4	GPIIn24
	11	37			TallyComS
	12		21		Tally49S
	13			5	Tally50S
	14	38			Tally51S
	15		22		Tally52S
	16			6	TallyComT
	17	39			Tally53T
	18		23		Tally54T
	19			7	Tally55T
	20	40			Tally56T
	21		24		TallyComU
	22			8	Tally57U
	23	41			Tally58U
	24		25		Tally59U
	25			9	Tally60U
	26	42			TallyComV
	27		26		Tally61V
	28			10	Tally62V
	29	43			Tally63V
	30		27		Tally64V
	31			11	TallyComW
	32	44			Tally65W
	33		28		Tally66W
	34			12	Tally67W
	35	45			Tally68W
	36		29		TallyComX
	37			13	Tally69X
	38	46			Tally70X
	39		30		Tally71X
	40			14	Tally72X
	41	47			GPIOutComY
	42		31		GPIOut17Y
	43			15	GPIOut18Y
	44	48			GPIOut19Y
	45		32		GPIOut20Y
	46			16	GPIOutComZ
	47	49			GPIOut21Z
	48		33		GPIOut22Z
	49			17	GPIOut23Z
	50	50			GPIOut24Z

8-RU Frame (GPI In 25-32, Tally 73 - 96, GPI Out 25 - 32)



Socket	Ribbon Cable	50-Pin D-Sub			Signal
	1			1	GPIInCom
	2	34			GPIInCom
	3		18		GPIIn25
	4			2	GPIIn26
	5	35			GPIIn27
	6		19		GPIIn28
	7			3	GPIIn29
	8	36			GPIIn30
	9		20		GPIIn31
	10			4	GPIIn32
	11	37			TallyComAA
	12		21		Tally73AA
	13			5	Tally74AA
	14	38			Tally75AA
	15		22		Tally76AA
	16			6	TallyComAB
	17	39			Tally77AB
	18		23		Tally78AB
	19			7	Tally79AB
	20	40			Tally80AB
	21		24		TallyComAC
	22			8	Tally81AC
	23	41			Tally82AC
	24		25		Tally83AC
	25			9	Tally84AC
	26	42			TallyComAD
	27		26		Tally85AD
	28			10	Tally86AD
	29	43			Tally87AD
	30		27		Tally88AD
	31			11	TallyComAE
	32	44			Tally89AE
	33		28		Tally90AE
	34			12	Tally91AE
	35	45			Tally92AE
	36		29		TallyComAF
	37			13	Tally93AF
	38	46			Tally94AF
	39		30		Tally95AF
	40			14	Tally96AF
	41	47			GPIOutComAG
	42		31		GPIOut25AG
	43			15	GPIOut26AG
	44	48			GPIOut27AG
	45		32		GPIOut28AG
	46			16	GPIOutComAH
	47	49			GPIOut29AH
	48		33		GPIOut30AH
	49			17	GPIOut31AH
	50	50			GPIOut32AH

Section 6

Basic Configuration

Introduction

This section provides basic system configuration information for the Kayenne Video Production Center. Refer to the latest *Kayenne Release Notes* for information specific to your current software version.

Configuration Steps

Kayenne basic system configuration includes the following steps:

1. Power up the system.
2. Set IP addresses for your facility (if not using defaults). Node Settings will also need to be configured for proper system communications (see page 140).
3. Adjust Control Panel button and display illumination.
4. If necessary, calibrate Control Panel lever arms and joystick.
5. Define your basic Engineering Setups. Essential settings include:
   - Source Definition (see page 156)
   - Outputs (see page 161)
   - Tally (see page 165)
6. Define a baseline User Setups (Panel Prefs and Suite Prefs). Important settings include:
   - Button Mapping (see page 174)
   - Source Patching (see page 175)
   - Default Keyframe (see page 175)
7. Configure external devices with the Kayenne system (see *Section 7-External Interfaces*).
8. Save your configuration files (see page 176).

9. Additional configuration will be required if multiple suites are being used (see page 183).

Kayenne Configuration Data

Current configuration settings reside on the Video Processor Frame (in the NV folder on the Compact Flash drive on the Processor Board). These settings affect Kayenne system operation. When the Video Processor resets, these settings are read and enacted. Configuration settings can be saved to files and loaded back into the Kayenne system at a later time to restore those operational settings.

Kayenne configuration data falls into a few basic categories:

Eng Setup

Engineering Setup defines basic Kayenne system functionality, including how it is cabled into a facility. Eng Setup applies to the entire Kayenne system and can affect both suites if a second suite has been configured. Engineering Setups are intended to be used and maintained by technical staff. These parameters are typically set once and seldom changed, unless the facility changes in some way (new devices installed, signals rerouted, etc.).

User Setups

User Setups can customize Kayenne system behavior for personal preferences, and to meet workflow requirements of a particular show. These settings are divided into **Panel Prefs** and **Suite Prefs**.

Panel Prefs affects how a specific Kayenne control surface operates for an individual user, including Button Mapping, Source Colors, etc. These settings apply to a single control surface.

Suite Prefs controls more fundamental system behavior like Resource Allocation, Source Patching, E-MEM Prefs, etc. These settings apply to all Kayenne control surfaces within that suite, and so can affect multiple operators. On Kayenne systems configured with multiple suites, each suite will has its own independent Suite Prefs settings.

Network IPs and Node Settings

The Kayenne system employs Ethernet IP communications. IP addresses are set on the Video Processor Frame, Image Store, Control Panel, and Menu Panel. The Kayenne Video Processor Frame maintains a list of IP nodes to enable communication with the other devices in the system. This list is stored separately from the Eng Setup and User Setups configuration files. This permits loading these configuration files without the danger of accidentally disrupting system communications.

One exception is Remote Aux Panel IP network settings, which are stored in the Kayenne Eng Setup configuration file, along with other Remote Aux Panel settings.

Kayenne Menu Panel and Menu Application

Note Brief descriptions of the Kayenne Touch Screen Menu Panel and Kayenne Menu application are presented here. Refer to the separate *Kayenne User Manual* for detailed information.

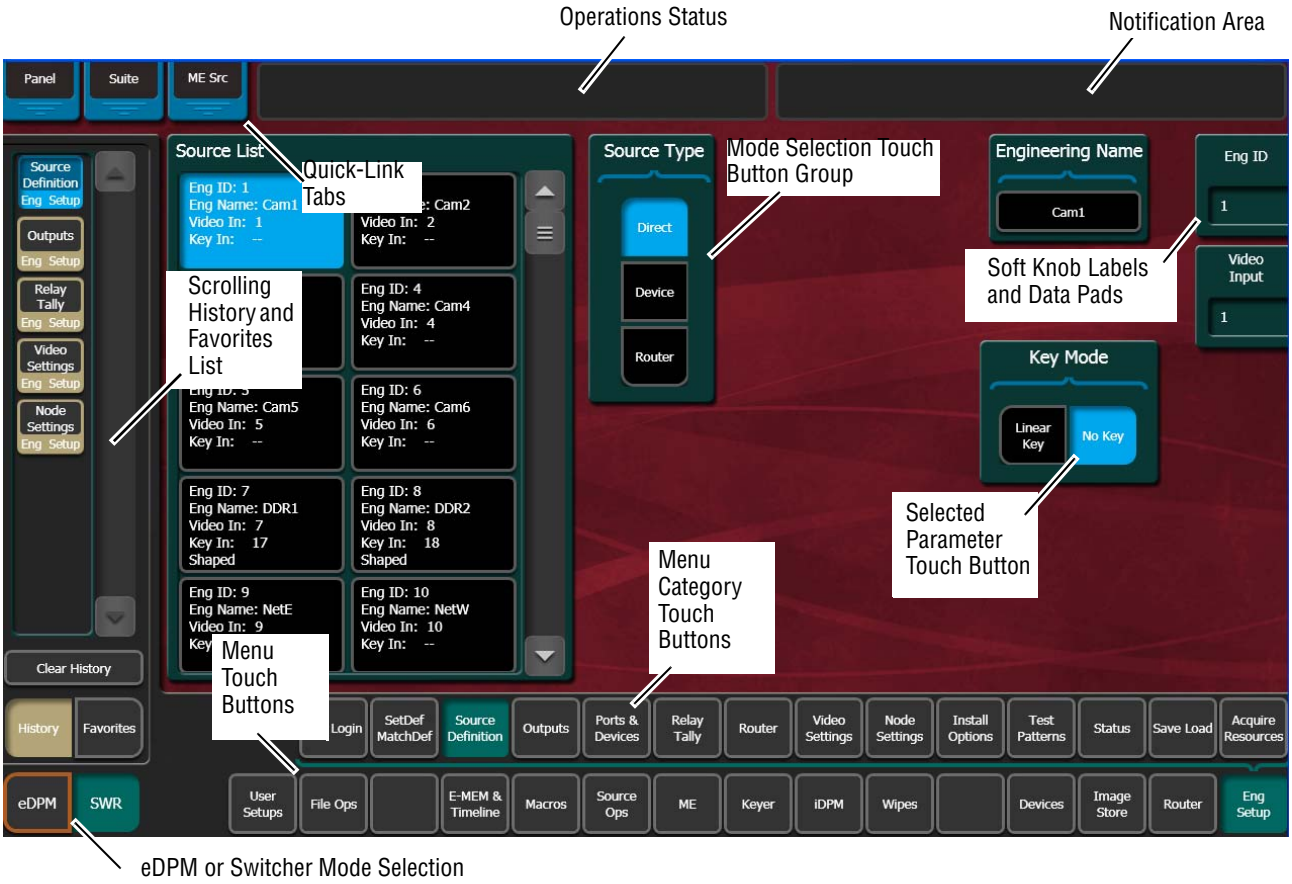
The Kayenne Menu application is used to configure your Kayenne system. This application launches on the Kayenne Menu Panel on bootup. Configuration can be accomplished with the Kayenne Menu Panel using just its touch screen, though connecting a keyboard will help ease data entry.

CAUTION Do not apply any sharp or rigid object (no pens or pencils) to the touch screen display surface.

You can also install the Kayenne Menu application on a PC. Once connected to the Kayenne network, the application operates the same as on a Menu Panel, using a mouse and keyboard. See the separate *Kayenne Release Notes* for information on software installation.

The Kayenne system menus are context sensitive. They display different information and provide various types of controls depending on what area of the system is involved. A representative menu is shown in Figure 92.

Figure 92. Kayenne Menu Example



Menu Top Line

The top line is identical in all the Kayenne system menus:

- The left portion of the top line has three **Quick-Link Tabs**, which provide access to other related Kayenne menus.
- The center portion of the top line displays operations status messages.
- The right portion of the top line is an operator notification area, where messages generated by the Kayenne system are displayed.

Data Pads and Touch Buttons

Data pads are active areas on the screen that display a summary of the status of an object, and when touched bring up additional controls and information for that object.

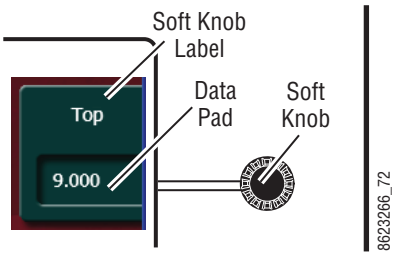
Touch buttons are labeled by their function and do not display data. Touching these buttons will immediately activate their function.

Touch buttons can control on/off functions, and have an indicator on the left side, or they can select from a group of parameters, and turn light blue to indicate the state of that parameter. For on/off buttons, green indicates

this is a normal parameter and that either an on or off state is typical. Yellow indicates an active function that may change expected behavior. Red indicates an active function which significantly changes normal behavior.

Soft Knobs

Figure 93. Soft Knob and Data Pad



Knobs along the right side of the Menu panel can be used to dial in parameter values for functions displayed on the touch screen. When a knob is active, the touch screen displays the parameter name and its current value on a data pad (Figure 93). The parameter can be adjusted by turning the knob, or the data pad can be touched to bring up a numeric keypad.

Menu Selection

Various Kayenne system operating menus are selected using the menu buttons at the bottom of the Menu panel touch screen. Menu category selection touch buttons are directly above the **Menu** touch buttons. Touching one of these buttons displays that category (see Figure 92 on page 134).

As each menu is accessed, a button for it appears in the scrolling **History** pane on the left, providing a quick return to that menu. **Favorites** can also be programmed for quick access to specific menus that are not overwritten.

Note The optional eDPM system has its own set of operating menus, accessed by touching the **eDPM** button on the lower left. For basic Kayenne configuration be sure the **SWR** button is selected.

System Power Up and Initialization

Both the Kayenne Video Processor Frame and Panel Control Unit (PCU) must be powered up for full system operation. The Control Panel Stripes and Menu Panel(s) receive power from the PCU.

1. The Kayenne Video Processor Frame power switch is located inside the front door, on the front of the control board (see Figure 72 on page 101 and Figure 76 on page 105).

2. The PCU power switch is located inside the front door, near the center of the upper board (see Figure 81 on page 109).

CAUTION The front doors of the Video Processor Frame and PCU must remain closed during normal system operation for proper cooling airflow.

Power and Initialization Indications

Power to the system is indicated by operation of the fans in the Video Processor Frame and PCU, illuminated buttons on the Control Panel, and a Kayenne screen is displayed on the Menu Panel.

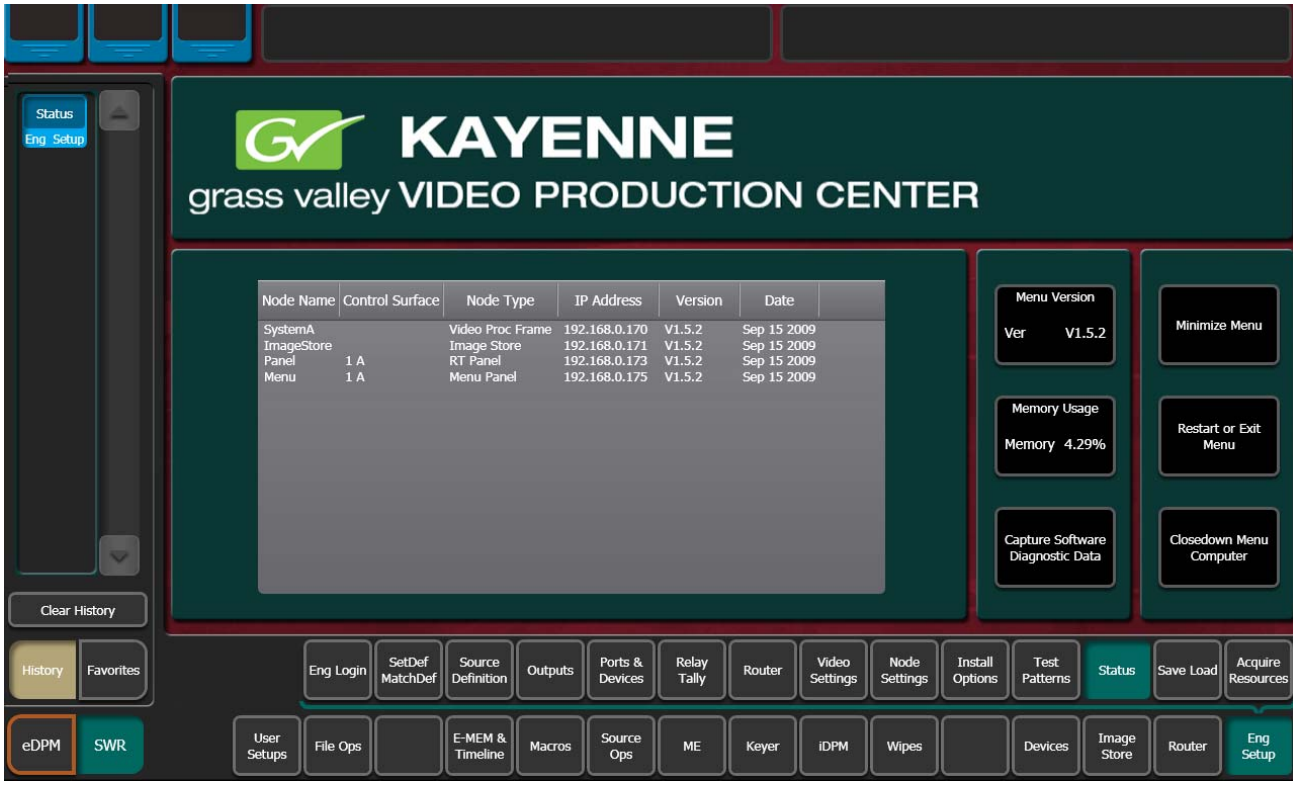
During Kayenne Menu application initialization the screen shown in Figure 94 is displayed.

Figure 94. Kayenne Menu Initialization Screen

Kayenne Menu Application Initialization

When Kayenne Menu application initialization completes the Status menu is displayed. This menu reports any connected devices, IP addresses, and software versions and dates of those devices in the center of the screen (Figure 95).

Figure 95. Eng Setup Status Menu



Default Kayenne System Communications

Kayenne systems ship with factory default settings that allow components to communicate with one another when powered up, provided they are connected properly (Ethernet and PCU multi-pin connections). These Kayenne components appear on the Status Menu.

We recommend you use an isolated Ethernet network with your Kayenne system (to prevent possible IP address or network traffic conflicts), particularly when first setting up your system (see *Bench Test (Optional) on page 40*).

Establishing Menu to Frame Communication

If a Video Processor Frame is not found by the Kayenne Menu application, the Status Menu central window will be empty and a **NO FRAME COM** message will be displayed in the upper right Notification Area (Figure 96).

Figure 96. Eng Setup Status Menu, No Frame Communications

The following conditions need to be met before the Kayenne Menu application can communicate with the Video Processor Frame. This list assumes the Kayenne Touch Screen Menu Panel is being used. Similar requirements apply when the Kayenne Menu application is run on a PC:

- The Video Processor Frame and PCU must be powered up and running.
- The IP address of the Kayenne Menu Panel must be set to be on the same network as the Video Processor Frame.
- Ethenet cabling should directly connect the PCU to the Video Processor Frame.
- The IP Address the Menu application will use to communicate with the Frame must be in the **Frame IP Address** field of the **Frame Suite Nodes & ID** menu (to identify which Frame the Menu Panel will connect to).
- The Menu Panel's IP address must be in the **IP Address** field of the **Control Surfaces** menu (to register that Menu Panel as a node on the Frame).

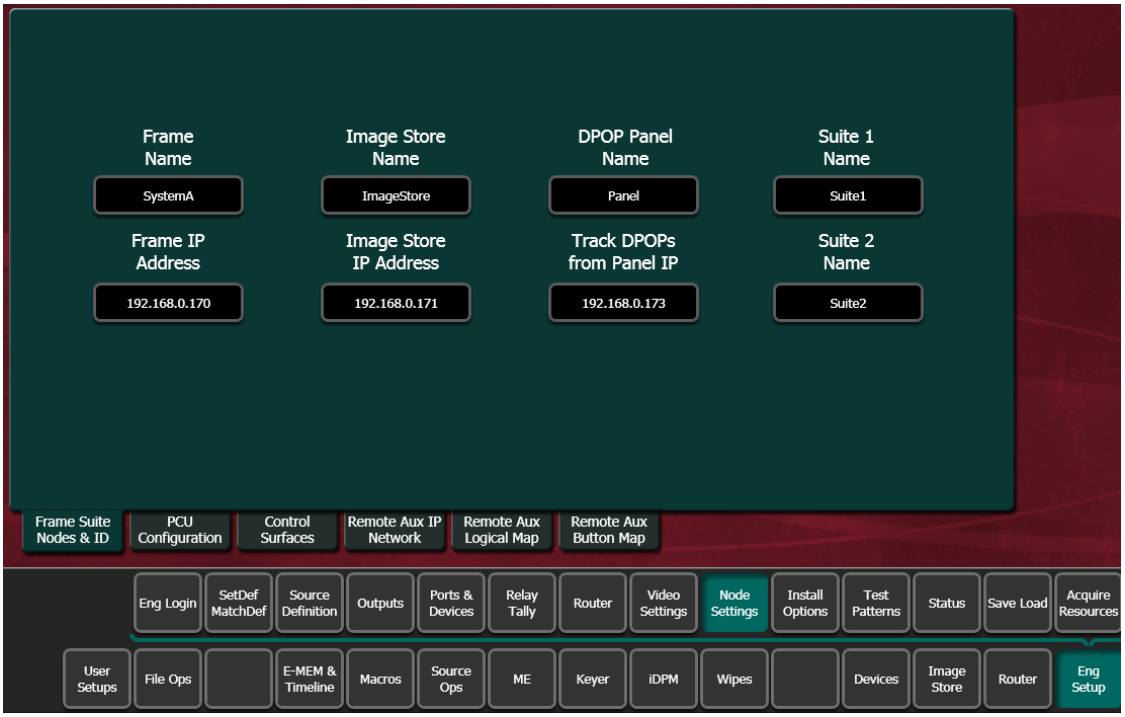
Connecting the Menu Application to a Frame

Use the following procedure to connect a Menu Panel with a compatible IP address to a properly cabled and operating Video Processor Frame. Two

Menu application resets will be required, one to connect to the Frame and another to register the Menu application IP with that Frame:

1. On the Kayenne Menu application, go to **Eng Setup**, **Node Settings**, **Frame Suite Nodes & ID** (Figure 97).

Figure 97. Frame Suite Nodes & ID Menu



2. Enter the IP address the Menu will use to communicate with the Frame in the **Frame IP Address** field.

3. A Restart Menu dialog box will appear (Figure 98)

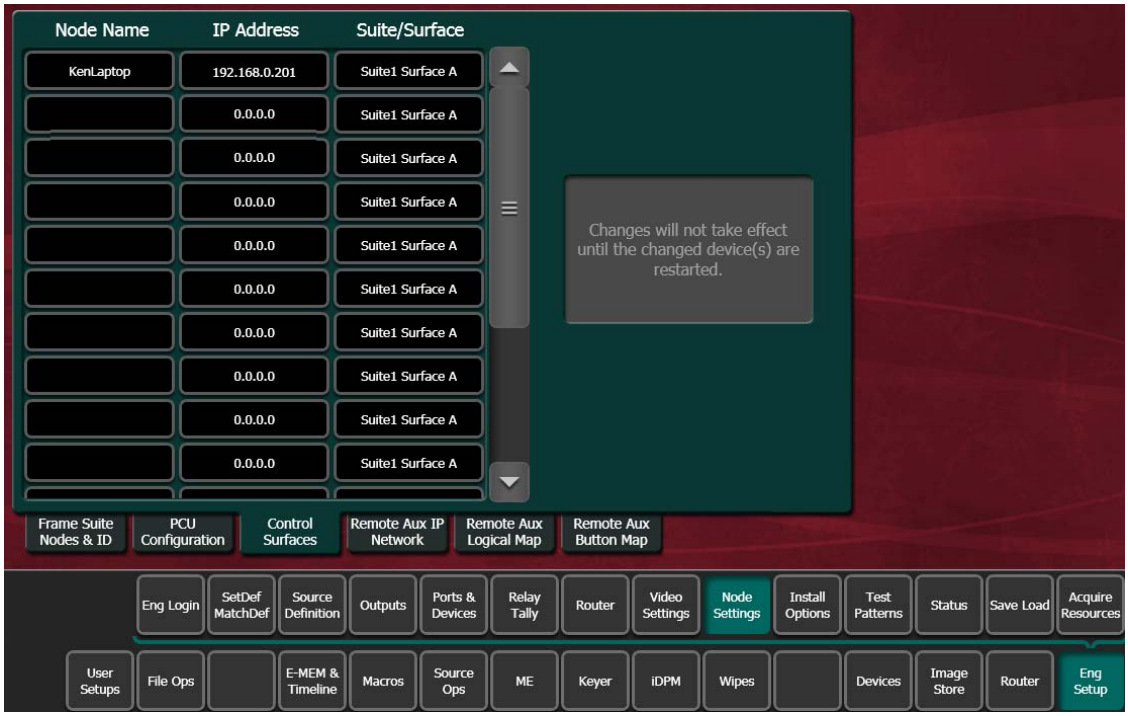
Figure 98. Restart Menu Dialog Box.

4. You can either touch **Restart Now** to restart Menu Panel application, or you can **Cancel**, make changes to the Image Store IP Address and Track DPOPs from Panel IP, and then do a single Menu Panel restart.

5. After the Menu Panel restarts, go to **Node Settings**, **Control Surfaces**. This is the only Kayenne menu that will be active when the Menu Panel is not registered with the Frame.

6. Enter a descriptive **Node Name** for the Menu Panel, and enter its **IP address** in one of the fields available (Figure 99).

Figure 99. Control Surfaces Node Menu



7. Touch the **Status** subcategory button to exit the menu. A Restart Menu dialog box will appear.

8. Touch **Restart Now** to restart Menu Panel application.

After restart, the **Status** menu should show the Video Processor Frame, and the Menu Panel should be fully operational.

Network Configuration

IP Address Background Information

Each device connected to any Ethernet network must have a unique IP address. An IP address has two components: the network address and the node address. The Subnet mask defines the dividing line between the two. The first three octets of Subnet mask provide the network address; the fourth is the node address. Nodes with the same network address can communicate directly with each other, while nodes with different network addresses normally do not communicate directly.

The Kayenne system uses Ethernet switches built into the Video Processor Frame and the PCU. The switch provides isolation between port pairs, providing deterministic communication for panel and frame messaging, and also allows Control Panel and Menu Panel communication for DPOPs. All nodes must also have the same network address and be given a different node address.

Gateway IP Addresses

A gateway IP address can be entered to allow communication with devices not located on the local Kayenne system network. Communication outside the local network requires using a configured network gateway server, a description of which is beyond the scope of this document. See your network administrator for information about gateway server installation and configuration.

Kayenne Default IP Addresses On Isolated Network

Each Kayenne system is shipped with default IP addresses (see *Factory Default Network Settings* *on page 116*). Grass Valley has chosen these default IP addresses to make Kayenne configuration easy. Kayenne devices should communicate with each other right out of the box when properly connected on an isolated network.

Connecting to an Existing Network

Additional network configuration is required if you connect the Kayenne Ethernet LAN to your facility Ethernet backbone, install additional Kayenne system components, or have multiple Kayenne systems on the same network cabling. For example, if more than one Kayenne system resides on the same network, the IP address of each additional Kayenne device must be changed before it is connected to the network.

To enable communication between Kayenne and other facility devices, you will need to change the Kayenne system default network addresses to match the facility address, or place a router between Kayenne and the facility networks. This complexity of network configuration is beyond the scope of this manual. Consult a networking expert if such networking is desired.

See your network System Administrator before connecting the Kayenne system to an existing network or making any IP address changes. The IP addresses (including any Subnet mask) of all the Kayenne devices on the network must be known before any changes are made.

Setting IPs with the Kayenne Installer Program

Figure 100. Installer Icon

The Kayenne Installer program can be used to set IP addresses of the Kayenne Video Processor Frame and Kayenne Control Panels

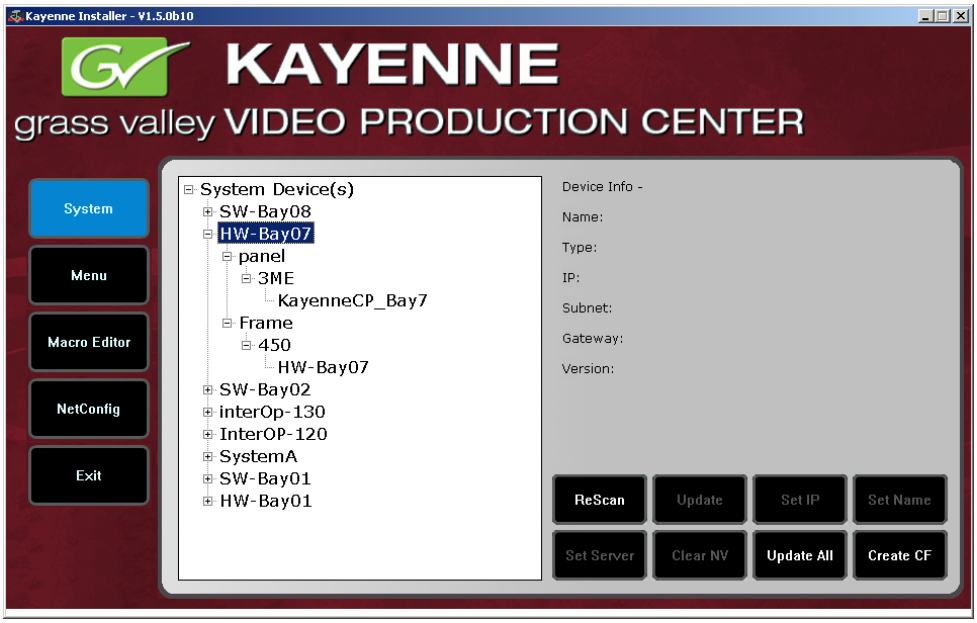
When the Kayenne software package has been deployed to your Menu Panel or PC, the Kayenne Installer icon will appear on the desktop (Figure 100).

Note A mouse and keyboard is required to navigate through the Kayenne Installer program and enter IP numbers and system names. Standard USB devices can be connected to any of four available ports on the Kayenne Menu Panel.

Kayenne System Names

The Kayenne Installer program includes a hierarchy display of Kayenne system components. This hierarchy starts with the name of the Kayenne system, and groups that system's Video Processor Frame with the Control Panel(s) configured with that Frame. The Kayenne system name is taken from the Video Processor Frame name. This hierarchy allows easy identification of each Kayenne system when multiple systems reside on the same network (Figure 101).

Figure 101. Kayenne Installer Program Hierarchy, Multiple Systems



The default name for every Kayenne Video Processor Frame is **SystemA**, and this works well when only one system is present on the network. However, if more than one Kayenne system with the default name is present, all the Frames and Control Panels will be grouped under that name.

If you have more than one Kayenne system, be sure to change the name of the Video Processor Frames so you can identify them easily. When each Frame has a unique name, the Control Panels configured with each Frame will be grouped with that system name.

The name of a Kayenne Video Processor Frame (and Kayenne system name) can be changed in several ways. Once changed by any method, any properly refreshed user display will report that changed name. The Video Processor Frame name can be changed with:

- Kayenne Installer Program,
- Video Processor Frame web page,
- Kayenne Menu Application Frame Suite Nodes & ID Menu, and
- NetConfig.

Set IP Procedure

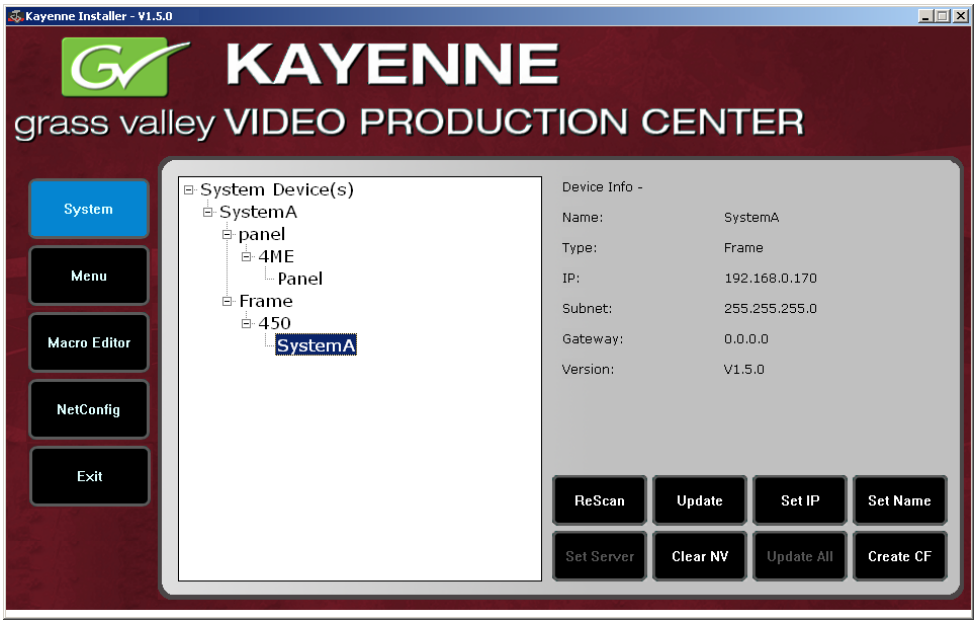
1. Ensure the Menu Panel or PC has an IP address able to communicate with the Kayenne system components and is physically connected to the Kayenne network.
2. Double click on the **Kayenne Installer** icon. The Kayenne Installer program will be launched (Figure 102).

Note The Kayenne Installer program and the separate NetConfig application cannot run simultaneously on the same Menu Panel or PC.

Figure 102. Kayenne Installer Program Initial Screen

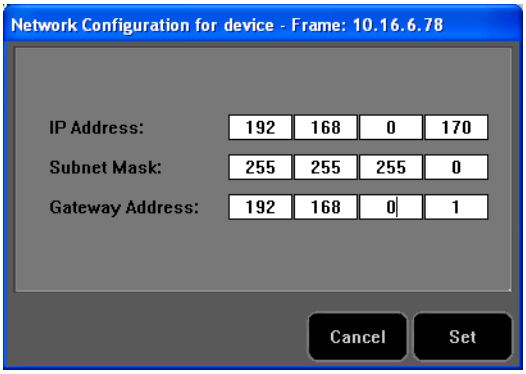
3. Click on the **System** button on the left to open a hierarchy display of Kayenne systems. Each Kayenne system consists of a Video Processor Frame and associated Control Panel(s). Use the mouse to navigate to the desired component (Figure 103).

Figure 103. Installer Application, System Hierarchy



4. Click the **Set IP** button to open an IP Address entry window (Figure 104).

Figure 104. Kayenne Installer Program, IP Address Entry Window



5. Click on each field to be changed, type in the desired IP address, and click **Set**.

6. The component will need to be reset to make the IP address change take effect. Press the reset button on the Video Processor Frame, or the Panel Reset button (the one on the left) on the PCU to reset the device. See *Reset Procedures* *on page 248* for details.

CAUTION Changing the IP address of an operating Kayenne component can disrupt system communications until matching changes to the addresses other components use are made on those other devices. Registering new IP Node addresses may also be necessary.

Other Kayenne Installer Program Functions

The Kayenne System Installer application has the following other features, accessed by clicking on its labeled button:

Rescan - Re-scans the network for Kayenne devices. This refreshes the screen to show the currently connected components and any modified system names.

Update - Updates the software on the selected device using the software deployed with this Kayenne Installer version.

Set Name - Opens a window allowing you to change the name of the selected device.

Set Server - (Control Panel selected in hierarchy window) - Opens a window allowing you to enter the IP address the Control Panel will use to communicate with the Video Processor Frame.

Clear NV - (Frame or Control Panel selected) Clears NV Memory.

Update All - (System selected) Updates software to all devices for the selected system, excluding Menus.

Create CF - Allows the duplication of a Frame or Control Panel Compact Flash Card onto another CF Card.

Other tools are also accessible for installing the Kayenne Menu Panel application, the Macro Editor, and NetConfig by clicking on their labeled buttons.

Changing Video Processor IP Address

The Video Processor IP address can be changed using different methods:

- Kayenne Installer program (see page 142), or
- the Video Processor Frame webpage.

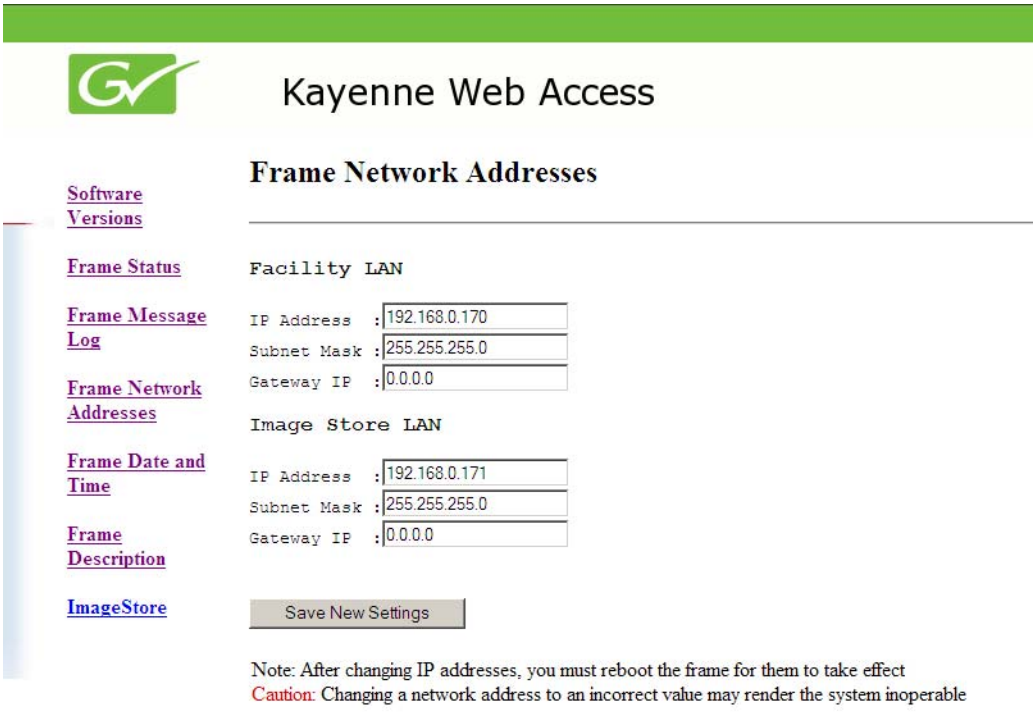
Network Web Browser Method

You need to know the current IP address of the Video Processor Frame before you can change it using a Web browser, mouse and keyboard.

1. Using any web browser connected to your Kayenne network, enter the Video Processor Frame IP address in the address field and press **Enter**.

2. Click on **Frame Network Addresses** (Figure 105).

Figure 105. Frame Network Address Web Page



3. Under Facility LAN, type in the new IP address (and subnet mask and gateway if needed). Make sure you enter the correct number exactly. A typing error can make the frame inaccessible over the network, since you need to know its IP address for use with the Web browser. If you make a mistake, you can use the Serial Port and Terminal method to view the existing IP address and change it to the correct value.

4. The Image Store IP address can also be changed from this menu, if necessary.

5. Click on the **Save New Settings** button.

Reset the Video Processor Frame by pressing the **Reset** button on the Video Processor Frame Control Processor module.

The Video Processor Frame will boot up with the new IP address. Communications will no longer occur with any Kayenne system devices that are configured to use the old Video Processor Frame IP address. You will need to go to each device and change the address they use to communicate with the Video Processor Frame.

Changing Image Store IP Address

The Image Store IP address can be changed using the Video Processor Frame web page. See *Network Web Browser Method* *on page 145* for more information.

Changing Control Panel IP Address

A Kayenne Control Panel's IP address can be changed using various methods:

- Control Panel IP Mode on Multi Function Module, or
- Kayenne Installer program (see page 142).

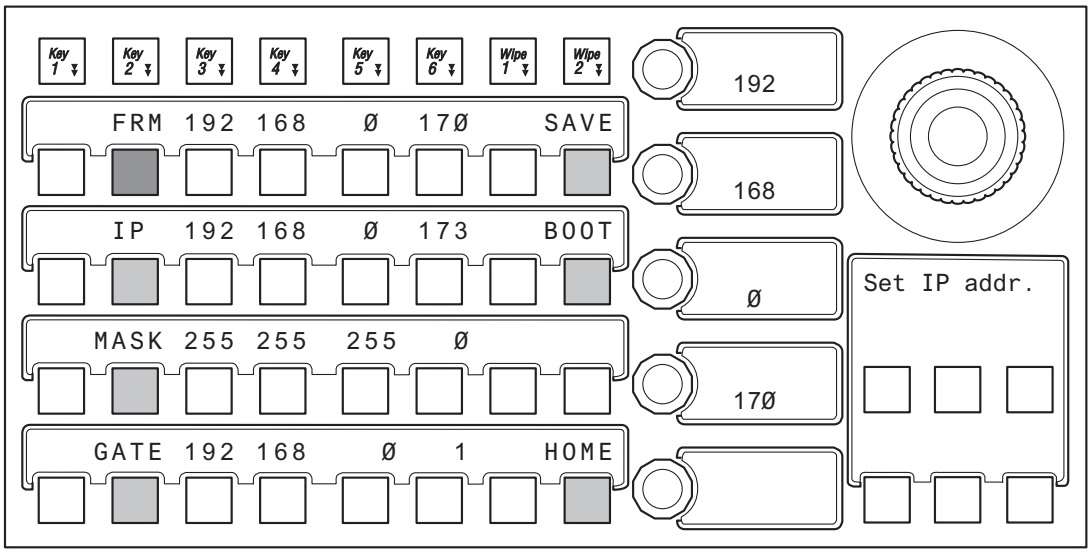
Control Panel IP Mode

The Multi-Function Module can be used to change the IP address of the Control Panel, and also enter the IP address that Control Panel will use to communicate with the Video Processor Frame.

1. Access the Multi-Function Module Home menu, then press the **Panl** button.

2. Press the **IP** button to go to IP Mode. The first display shows the IP address the Panel will use to communicate with the Frame on top. This Frame target address also appears in the scroll knob windows on the right. The current Control Panel IP address, Subnet Mask, and Gateway values are displayed below. The FRM button is initially high tally, and the three lower buttons are low tally (Figure 106).

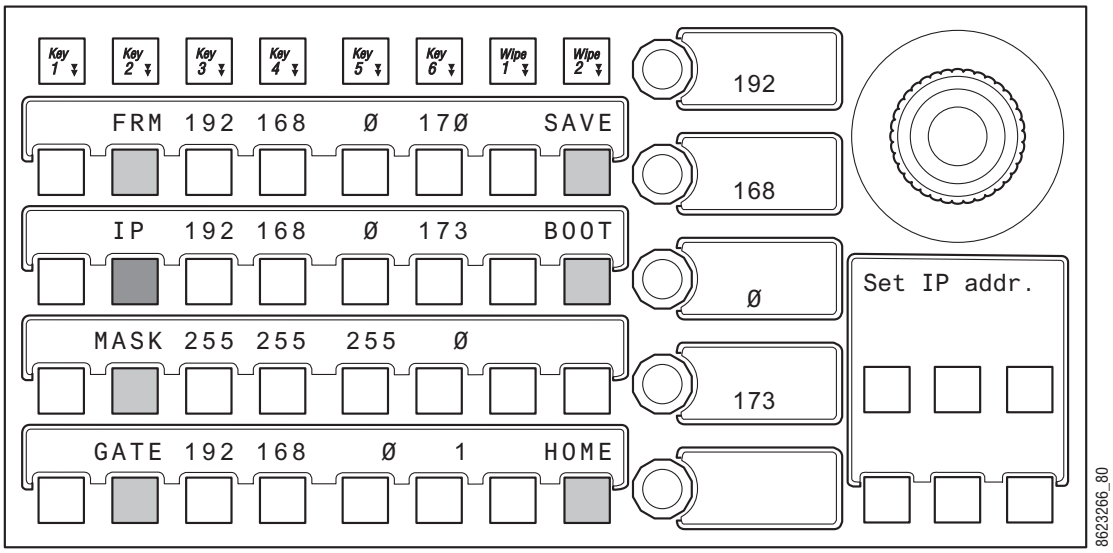
Figure 106. Control Panel IP Mode, Frame Selected



Note Changing and saving the displayed setting does not change the Video Processor Frame IP address. It will change the address the Control Panel uses to communicate with the Frame. To change the actual frame IP address, see *Changing Video Processor IP Address* *on page 145*.

3. Press the **IP** button to edit the Control Panel IP address. The IP button will be high tally and its values will appear on the right (Figure 107).

Figure 107. Control Panel IP Set Mode, Control Panel IP Selected



4. Use the scroll knobs to dial in new IP values. Alternatively, you can press on a scroll knob to bring up a numeric keypad on the buttons.

5. If necessary, press the **MASK** and **GATE** buttons to change that IP address data.

6. When all the displayed values are correct, press **SAVE** to save these new values. A **Re-boot Panl message** is displayed. Press **Yes** to reboot the Control Panel and enact the new IP settings.

CAUTION Changing the IP address of an operating Kayenne component can disrupt system communications until matching changes to the addresses other components use are made on those other devices. Re-registering IP Node addresses may also be necessary.

See *Control Panel Registration* *on page 152* regarding additional configuration steps required.

Note The Multi-Function Module on a Control Panel (**HOME**, **Panl**, **IP**) only reports the Prime IP address, even that Control Panel it has been configured to use the Alternative IP address.

Changing Menu Panel IP Address

Set the Kayenne Menu Panel IP addresses using the Windows XP interface. You may use the touch screen to access the Windows settings but you will need to use a mouse and keyboard connected to the Menu panel for entering the IP address values. To set the Menu panel address:

1. Go to **Eng Setup**, **Status** and touch the **Minimize Menu** button. This will take you to the Windows desktop.

2. Go to **Start**, **Settings**, **Network Connection**, **Local Area Connection**, **Properties**, and follow the standard Windows IP address setting procedure.

See *Menu Panel Registration on page 152* regarding additional configuration steps required.

Setting 32-Crosspoint Remote Aux Panel IP Address

The default IP addresses of Remote Aux Panels are set to at the factory before shipment will not work with a Kayenne system whose other components are set to defaults. Typically, Kayenne systems are equipped with more than one Remote Aux Panel. If more than one Remote Aux Panel will be used on your Kayenne system, you will need to change each panels' IP addresses so none are duplicated, and this must be done before you connect them to the network. This will require a mouse and keyboard connected to a PC disconnected from the network.

Check with your network administrator to learn what IP addresses should be used at your facility.

Setting the IP Address

A PC equipped with an Ethernet interface and a web browser is required to change Remote Aux Panel IP addresses.

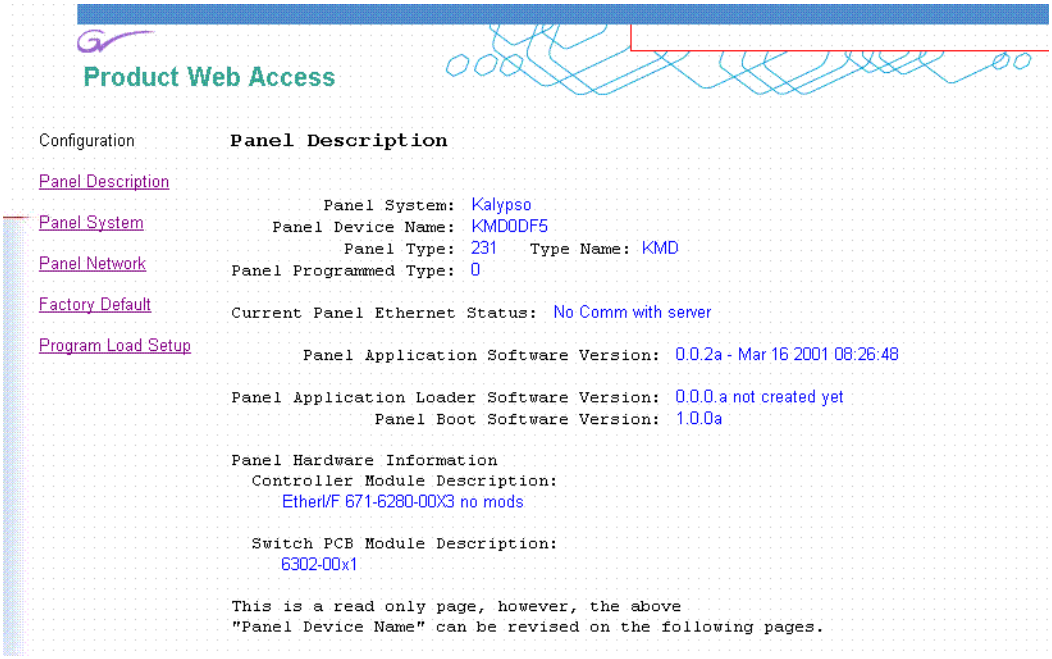
1. With the PC disconnected from all facility networks, connect the PC's Ethernet port directly to the Remote Aux Panel.

Note A crossover Ethernet cable (Tx/Rx pair crossed) is needed when connecting a PC directly to the Remote Aux Panel without a hub intermediary.

2. Start the web browser, enter the default IP address (192.168.1.2) in the address field, and press **Enter**. If the address is found, a Panel Description screen similar to Figure 108 will appear.

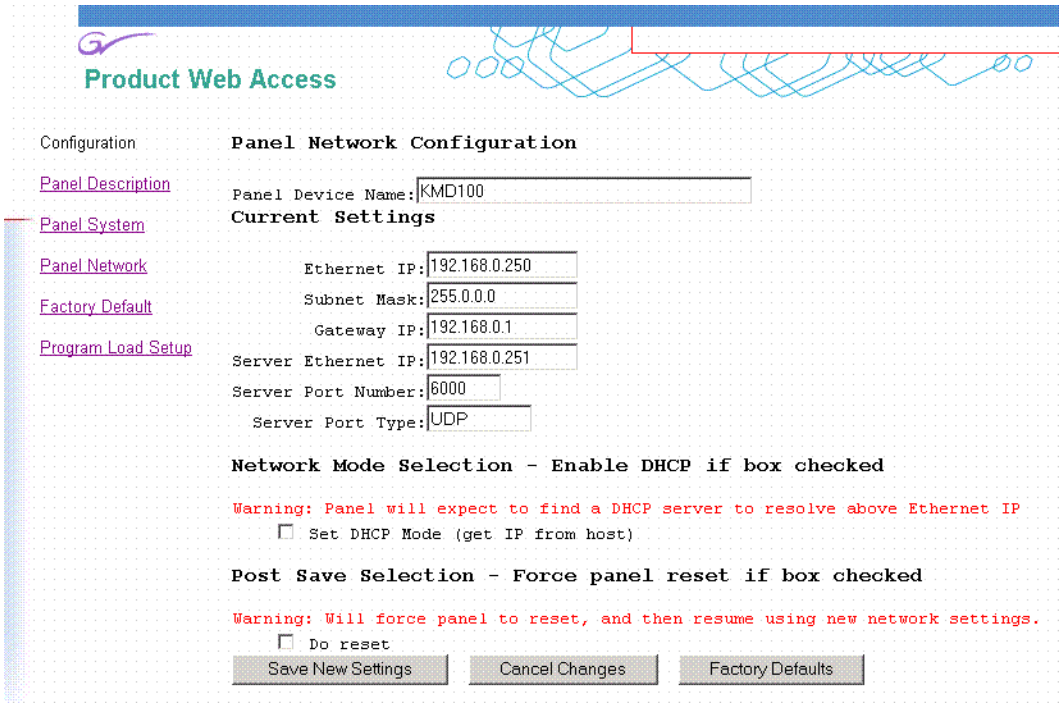
Note If the Remote Aux Panel address is not found, you may need to reset the panel to its defaults (see page 152).

Figure 108. Panel Description Screen



3. Click on **Panel Network**. A Panel Network Configuration screen similar to Figure 109 will appear, displaying the factory default settings.

Figure 109. Panel Network Screen, Default Information

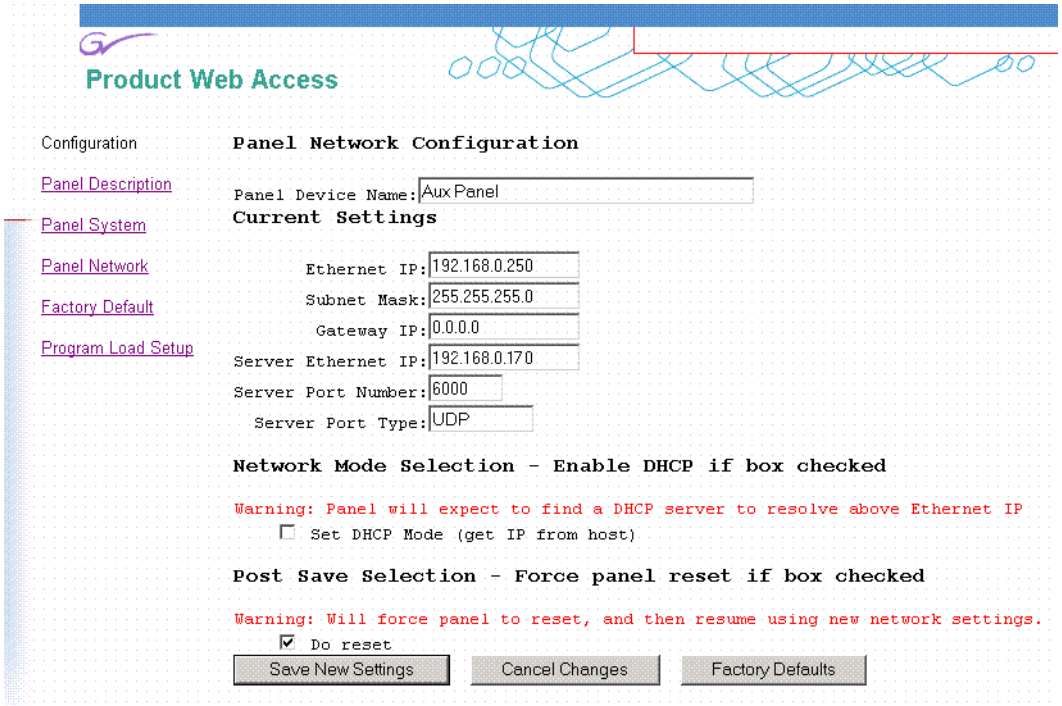


4. Enter the IP addresses and other information appropriate for your system.
   - The **Panel Device Name** is used to name the panel, for user convenience. This field does not affect the operation of the unit.
   - The **Server Ethernet IP** field is for the Kayenne Video Processor Frame.

Note Do not change the Server Port Number or Server Port Type fields. These settings need to remain at their defaults.

5. Settings for the first Remote Aux Panel of a Kayenne system using default IP addresses and not using a gateway is shown in Figure 110. The settings you use may need to be different, depending on your network requirements.

Figure 110. Typical Kayenne System Default IP Address Settings



6. Check the **Do reset** box at the bottom of the screen, then click on **Save New Settings**. The new IP addresses will be saved and the Remote Aux Panel will reset. You should label the panel with its IP address and keep a record of all IP addresses for future reference.

7. Disconnect the PC, and connect the Remote Aux Panel to the Kayenne system network.

8. Repeat this procedure on all the Remote Aux Panels to be used with your Kayenne system, entering a unique IP address for each Remote Aux Panel.

See *Remote Aux Panel Registration* *on page 154* regarding additional configuration steps required.

Restoring the Default IP Address

You need to know the current IP address of the Remote Aux Panel in order to change it using the Web browser. If a panel's IP address has been changed and its new value not recorded, it will be impossible to change its IP address. You can restore the panel to its factory default address, if necessary, with the following procedure.

1. Disconnect the Ethernet cable and the AC power cable from the Remote Aux Panel.
2. Reconnect only the AC power cable. The panel will enter a diagnostic mode.
3. Push down and hold any panel button. After three seconds panel buttons will light up sequentially, indicating different available diagnostics.
4. When three buttons illuminate, release the held button. This places the panel in IP Address reset mode, and one button will be flashing.
5. Press the flashing button. This resets the IP address to factory default.

Registering Kayenne System Nodes

When IP addresses have been changed on Kayenne system components, or new components are added, the Video Processor Frame needs to know what new addresses it will use to communicate with those components. This is accomplished by registering those addresses with the Frame using the Kayenne Menu application Node Settings Menus.

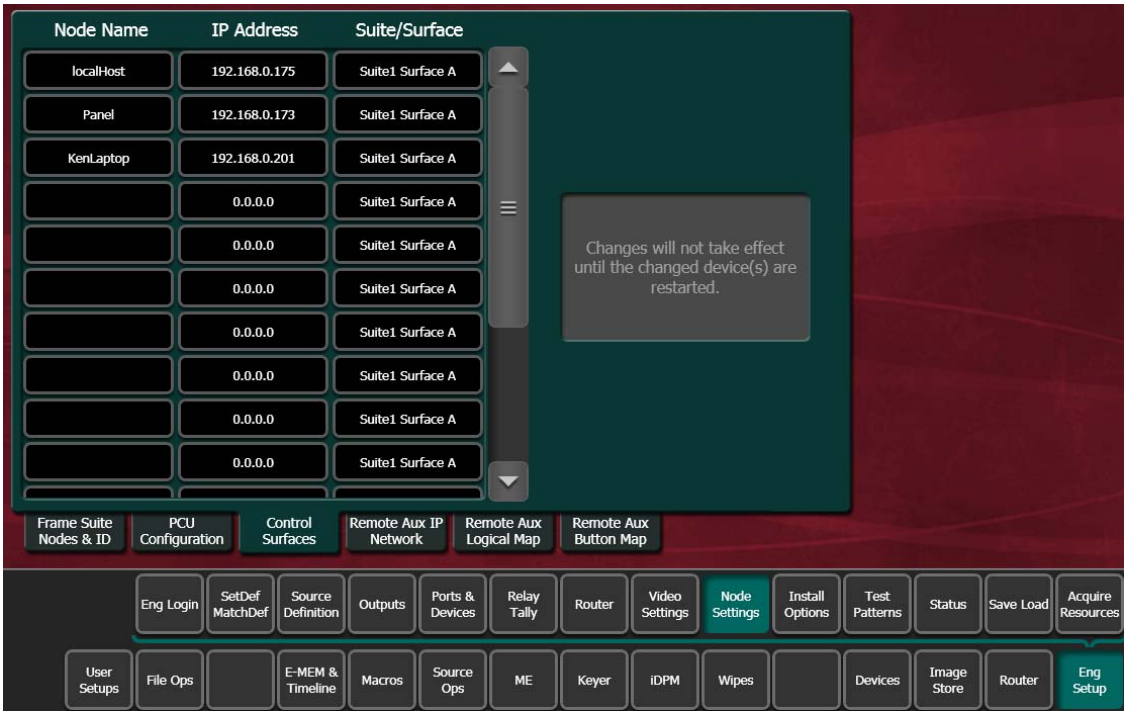
Menu Panel Registration

Registering the Kayenne Menu Panel (or PC running the Kayenne Menu application) with the Frame was described earlier (see *Establishing Menu to Frame Communication* *on page 137*). The Kayenne Menu application needs to be in communication with the Video Processor Frame before other nodes can be registered.

Control Panel Registration

1. Touch **Eng Setup**, **Node Settings**, **Control Surfaces** (Figure 111).

Figure 111. Control Surfaces Menu



2. Touch an available set of buttons and enter a Node Name and the IP address of the Control Panel.

3. You can assign the component to a suite and control surface now if you wish, but it is recommended to initially configure your Kayenne system as a single suite. Later, you can modify the configuration for multi-suite operation.

4. If you want that Control Panel button DPOPs (double press open) button) to affect this Menu Panel, touch **Frame Suite Nodes & ID** and enter the IP address of that Control Panel in the Track DPOPs from Panel ID field (see Figure 97 on page 139).

5. After making an addition or change, you will need to reset the Control Panel. This can be done two different ways:

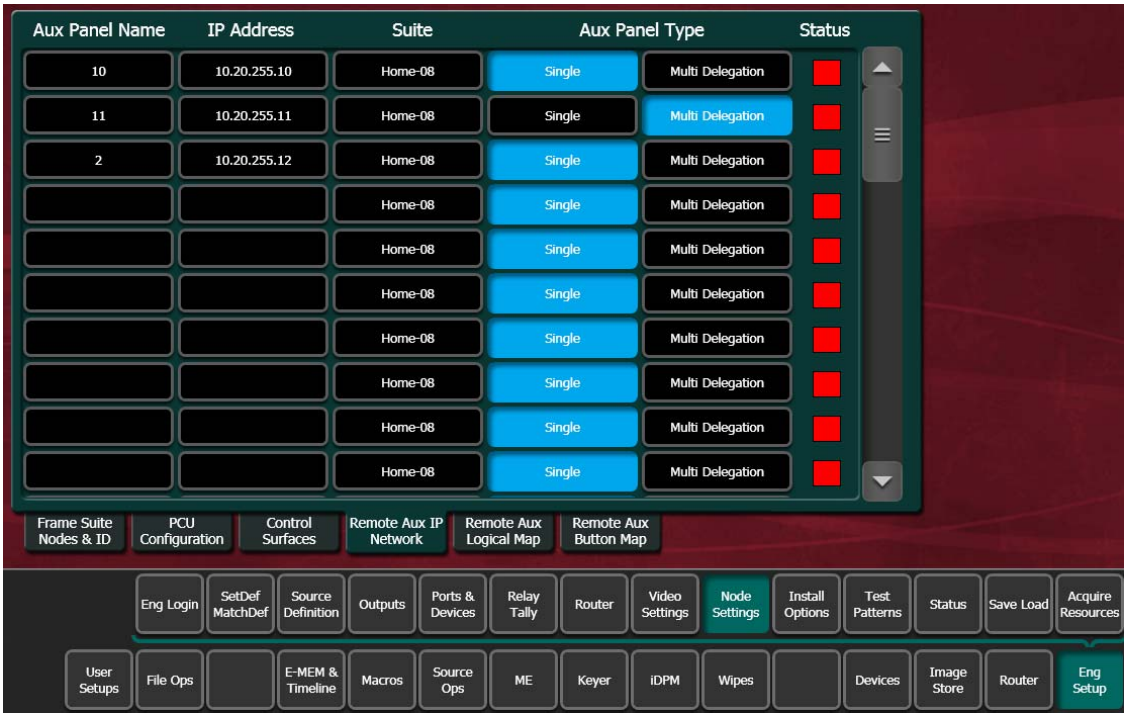
   - On the PCU, press the left **Panel Reset** button (Figure 81 on page 109), or
   - On the Control Panel Multi-Function Module access the Home menu, then press **Panl**, **IP**, **Boot** and press **Yes**.

Remote Aux Panel Registration

Note Do not confuse the Local Aux Panel, which is considered a Control Panel Stripe, with Remote Aux Panels, which are small panels used to change Aux Bus sources from a different location. The Local Aux Panel Stripe is not configured with the following menus.

1. Touch **Eng Setup**, **Node Settings**, **Remote Aux IP Network** (Figure 112).

Figure 112. Remote Aux IP Network Menu



2. Touch an available set of buttons and enter an Aux Panel Name and IP address of each Aux Panel.

3. Identify the type of Remote Aux Panel (Single or Multi- Destination).

4. You can assign the component to a suite and control surface now if you wish, but it is recommended to initially configure your Kayenne system as a single suite. Later, you can modify the configuration for multi-suite operation.

Remote Aux Panel Configuration

Each Remote Aux Panel needs to be configured, which involves identifying what Aux Bus(es) it will be able to control, and which sources will be available on that panel's button. See *Remote Aux Logical Map Menu* *on page 217* and *Remote Aux Button Map Menu* *on page 218* for more information.

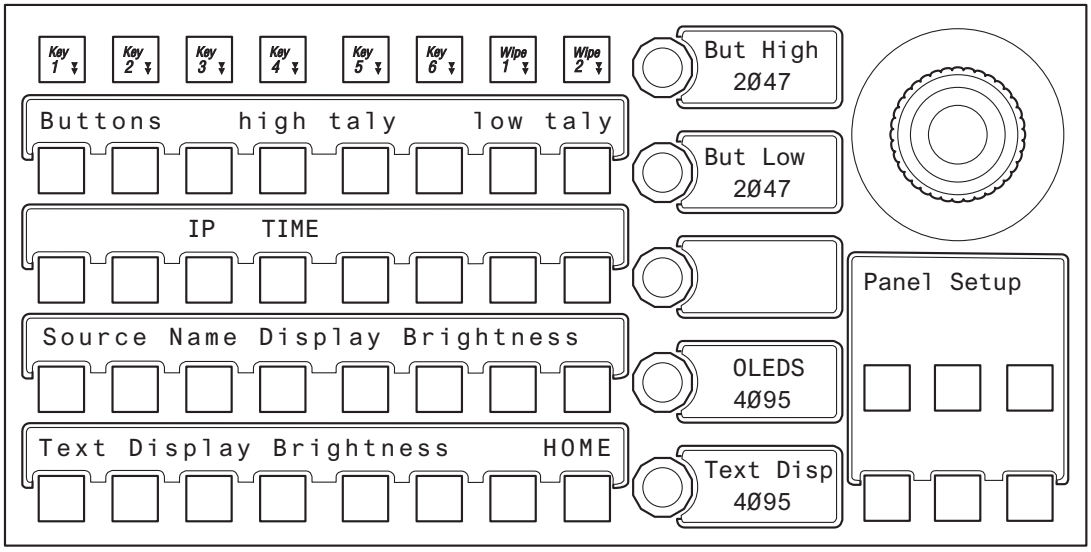
Control Panel Brightness Adjustment

Control Panel modules are calibrated at the factory for even brightness and color balance. Individual module illumination levels cannot be adjusted in the field. However, the relative brightness of button tally, source name displays, and text displays can be adjusted on a global basis to meet individual requirements (for example, to accommodate varying ambient room lighting levels).

1. If necessary, press the **Home** button to take the Multi-Function Module to its Home mode.

2. Press the **Panl** button to put the module into Panel Setup mode (Figure 113).

Figure 113. Control Panel Brightness Adjustment



3. Knob displays report the current settings of the Button High Tally, Button Low Tally, Source Name **Display** (OLEDS), and Text Display brightness. Turning each knob changes the brightness setting for that item.

4. When done, press **Home** to exit Panel Setup Mode.

Note To extend the life of display illumination hardware (in particular the OLEDs), the Control Panel automatically enters a sleep mode when its controls have not been touched for 15 minutes. In sleep mode all the Control Panel buttons and displays go dark, except the **Key 1** through **Key 6** and **Key Prior** buttons are illuminated blue and cycle. Touching any button or control on the Control Panel exits sleep mode.

Lever Arm and Joystick Calibration

Kayenne module Lever Arms and Joysticks are calibrated at the factory and should not need to be adjusted when a new system is installed. Calibration settings are stored within each module.

If Lever Arm or Joystick calibration becomes necessary, see *Control Panel Adjustments* *on page 250*.

Engineering Setups

Kayenne inputs and outputs are connected to the rear of the Video Processor Frame. These video signals need to be configured to your facility's requirements. Engineering Setups defines Kayenne system component functionality and how it is cabled into a facility. Engineering setups are intended to be used and maintained by technical staff, and can be loaded and saved to disk.

The Engineering Setup Menus are accessed by touching the **Eng Setup** Menu button at the bottom of the screen, and then selecting the appropriate Menu Category touch button.

Source Definition

Source definition tells the system which physical inputs or internal signals to use when a particular source is selected. The source definition, denoted by an Engineering ID number, specifies the signals involved, how to process that signal, and what external devices, if any, are associated with that source. Each Kayenne Video Processor Frame has one source definition set, shared by all users of that system (both control surfaces in both suites).

The default Source Select button definitions are listed in Table 9. These default sources are configured as video only signals.

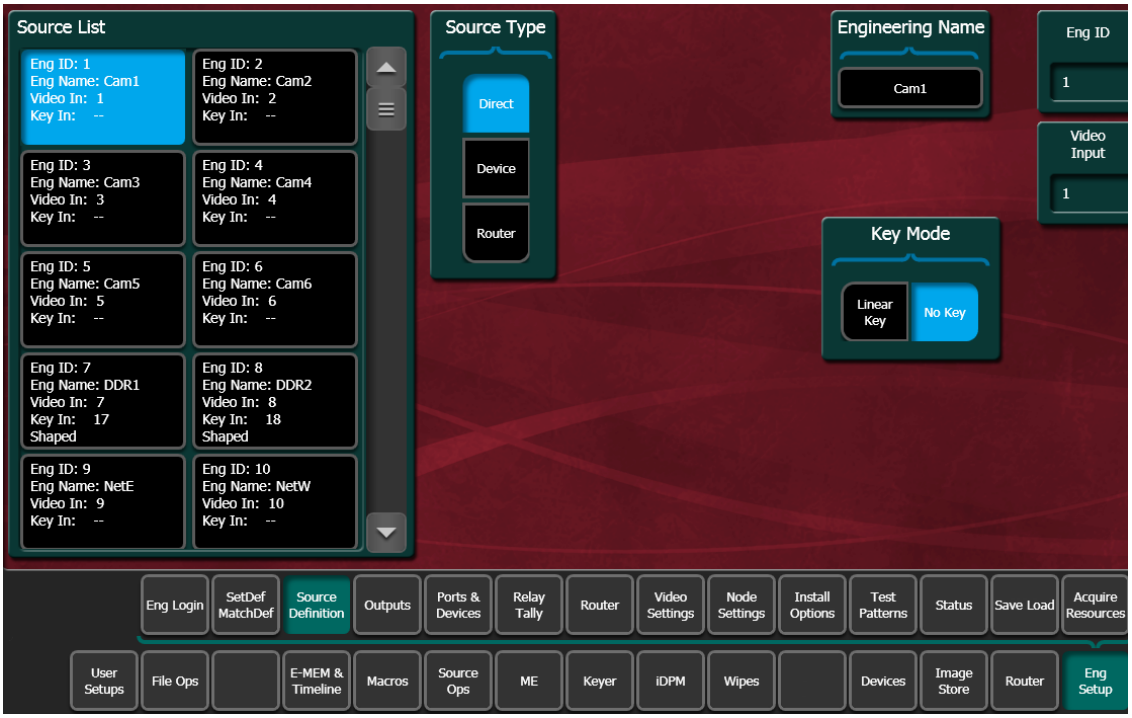
Table 9. Default Source Definitions

Engineering ID	Video Input	Source Type	Key Mode	Engineering Name	Key Input
1-24	Inputs 1-24 (standard, on Processor Board)	Direct	No Key	(blank)	None
25-96	Inputs 25-96 (optional groups of 24 on each ME Board				

Source Definition Menu

The Eng Setup Source Definition menu is used to change source definitions. Press the **Eng Setup** button, then touch the **Source Definition** to display the menu (Figure 114).

Figure 114. Source Definition Menu



Direct Source Definition

To Change Direct Source Definitions:

1. Touch the button of the desired Source located on left side of the screen (it is a vertical scrolling list).
2. Touch the **Engineering Name** data pad to name the source using the pop up alphanumeric keypad or standard keyboard. Up to 30 characters can be entered, but shorter names are recommended. See *Source Naming Background Information* *on page 158* for more information.
3. Touch the **Video Input** data pad to enter or scroll to the input number of the connector the source will use for video. The change is immediate and can be viewed on a connected monitor.

Note The number of usable input connectors depends on the number of ME boards installed in the Kayenne Video Processing Frame (24 inputs per board).

4. If the source includes a key signal, select **Linear** key with the lower touch buttons. Then touch the **Key Input** data pad and enter to the input number of the connector the source will use for the key.

Note For Chroma keys you can select either **Linear** or **No Key**. Chroma keys always use the video signal for keying, ignoring any separate key signal.

5. If desired, define **Clip High** and **Clip Low** values (used when a fixed linear key is selected for that source) with the labeled soft knobs and data pads.

External Device Source Definition

The **Device** and **Router** Source Type buttons are used to set up a source as an external device (including GPI and Peripheral Bus II controlled devices), or as a Router source. See *Section 7-External Interfaces* for information on configuring external devices.

Source Naming Background Information

Facility engineers need to know the exact routing of all the video signals connecting all the devices they are responsible for. These engineers need to be able to identify video signals in a way that will help them connect devices properly. Production personnel, on the other hand, are interested in the content they work with for their shows, and are generally not concerned about which individual device or routing path is used to make those signals available. They just need a way to identify the content and access it when they need it. To support these differing needs, two source naming mechanisms are available on Kayenne systems.

Engineering Names, Eng IDs, and Logical IDs

Engineering names are intended to identify a source as it applies to a specific facility. In a truck, for example, cameras may be hard wired to the production switcher and might be given Engineering names 1, 2, and 3. Names like Patch 14 or Rtr 5 may be used for inputs that are patched or routed. Engineering names are entered in the Eng Setup Source Definition menu, as described above. Engineering source IDs are numeric only, and are available on data pads and scroll knobs for quick selection. The Kayenne system also has logical IDs, that can be used for source patching, as explained later.

Alternative Source Names

Alternative names can be assigned to sources for the convenience of production personnel. For example, you may give the cameras menu names that include the operator (C1 Bob, C2 Phil, and C3 Bill), but remove the operator names from the OLED names to show C1, C2, and C3 in larger characters. These alternative names are entered in the Source Patch Menu.

The Source Patch Menu (Figure 115) has three editable columns for defining up to three alternative names:

A **Panel Name** is limited to four characters, to fit the space available on the Control Panel's Transition Module. This name is only displayed on the Control Panel.

An **OLED Name** appears only on the Source Name Displays on the Control Panel. Up to eight characters are displayed.

A **Menu Name** is limited to eight characters, and appears on all the Kayenne Menu application screens except Engineering Setup Menus, which always display engineering IDs or names.

Multiple Suites and Source Names

Different sets of these alternative source names are defined for each Kayenne suite. Ensure the Kayenne Menu Application you are using is logged into the correct suite (**Eng Setup**, **Eng Login**). The same set of engineering names will be used by both Kayenne suites, however.

Name Display Hierarchy

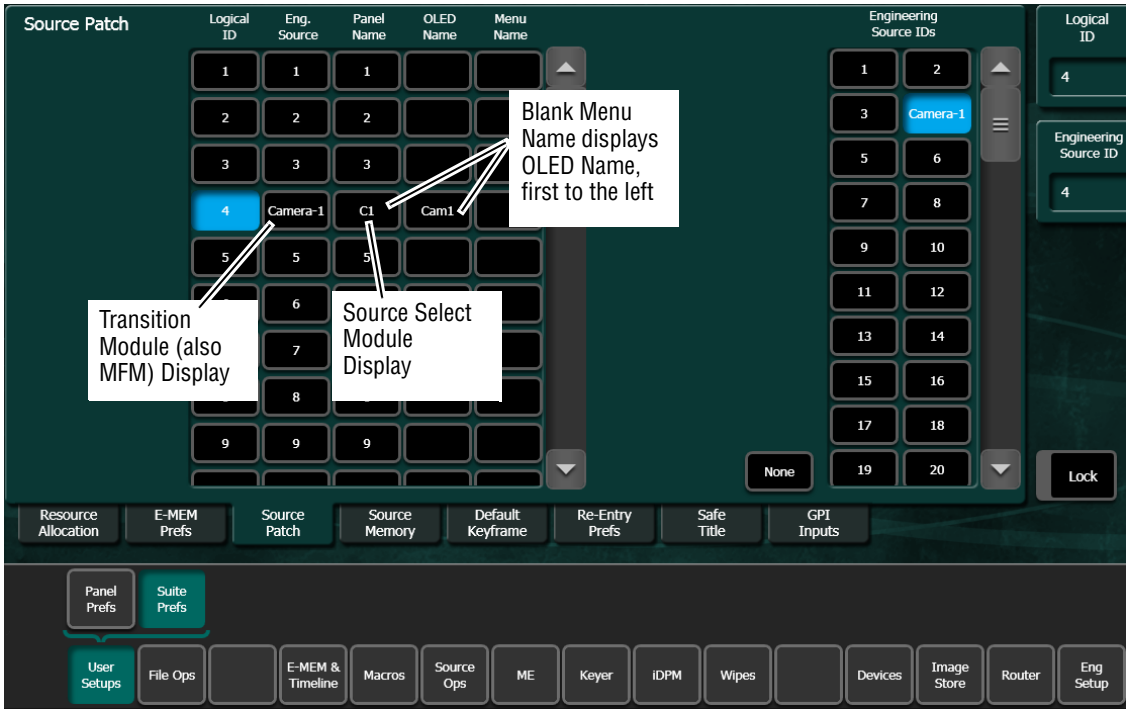
If a source's engineering name is left blank, the Eng ID number will be used. If no alternative names are defined for that source, then that Eng ID number will appear on all the Kayenne system displays.

If an engineering name has been entered (*see Kayenne Installation & Service Manual*) then the engineering name will be displayed on all the Kayenne system displays, including menus. Engineering names will be truncated to the character limits of the display, starting with the first character.

For alternative names entered in the User Setups, Suite Prefs, Source Patch menu (Figure 115), the following rules apply:

For the three editable columns: **Panel Name**, **OLED Name**, and **Menu Name**, if any of the three are left blank for that source, the first name to the left appears in that display on the system (if all three are left blank, the name in the Eng. Source Column is displayed). For example, if an alternative name is entered in the OLED Name column for a source and the other two columns remain blank, the Menu Name takes the OLED Name (OLED Name being first to the left of the Menu Name) but the Panel Name takes the Eng. Source column's name (first name to its left). If names are entered in all three alternative name columns, each area of the system displays the name entered in each column of the Source Patch menu (Figure 115).

Figure 115. Source Patch Alternative Source Names



It a good practice to create the least number of names possible. This ensures consistency in the various displays and reduces the time needed to enter and edit the names. If you can create short engineering names that work for both the production staff and engineering, complete naming consistency is assured. However, this level of simplicity is probably only feasible at a fixed installation where all the shows use the same source names. When multiple names are created, try to keep the first four characters unique, and make different names for the same source similar for ease of recognition.

Source Patch Feature

The Kayenne system provides a way to map engineering source IDs to logical IDs, using the Source Patch feature. By default this mapping is one-to-one, but this feature can be used to quickly set up production elements for use in a different facility. For example, a show's effects, DDR clips, and taped material may have been built in one production truck with one set of devices, but the next show is scheduled for a different truck. Previously, to use effects in the other truck the Technical Director (TD) would need to edit the engineering source definitions in the new truck so they exactly matched the old truck. By remapping the engineering sources of the devices in the new truck to the logical sources used to build the effects, all the effects can be used without having to edit them. Source Patching can also be used to quickly swap out a defective device during a show without having to reconfigure the engineering sources. In this case logical names seen by the production personnel would be identical for that content, even though the actual device playing the material changed.

Note Source Patching is the bridge between engineering sources and logical sources. Both TD and EIC should make reference to this menu when resolving source issues. The mechanism is similar in concept to a physical patch panel. Effects and all source selections are based on logical sources. Tally and associations with external devices are based on engineering sources.

Fixed Sources

Additional, fixed internal sources exist on a Kayenne system. These internal sources do not have user accessible Engineering IDs and are not displayed on the Eng Setup Source Definition menu.

These fixed sources (Table 10) are accessible via the User Setups. Suite Prefs, Source Patch menu. They can be given alternative names, if desired, but cannot be source patched.

Table 10. Fixed Internal Kayenne Sources

Area	Signals	Source Patch Eng. Source Names
ME 1, 2, 3, 4, Pgm	A, B, C, D, Preview A, Preview 2 outputs	M1 A, M1 B, M1 C, M1 D, M1pA, M1p2, same for M2 - M4, Pg A, Pg B, Pg C, Pg D, PgpA, Pgp2
eDPM	video out A, B, C, D	eDA, eDB, eDC, eDD
	key out A, B, C, D	eDAk, eDBk, eDCk, eDDk,
internally generated signals	Test	Test
	Black	Blk
	White	Wht
	Background 1	BB 1
	Background 2	BG 2
Image Store	Outputs 1 - 6	IS 1 - IS 6

Button Mapping

After sources have been defined they can be mapped to Kayenne system Control Panel buttons. The Button Mapping menu (accessed by touching **Daily Setups**, **Panel Prefs**, **Button Mapping**) is used to map the sources associated with each source selection button. Refer to the separate *Kayenne User Manual* for specific button mapping instructions.

Output Assignments

All Kayenne outputs are programmable. During configuration you determine which signals will be dedicated outputs. All the remaining outputs can be used for Aux buses. Output assignments determine which Kayenne system outputs appear on the output connectors. Kayenne system outputs are associated with Video Processor Frame ME boards (12 outputs each).

Default Output Assignments

The default Kayenne output assignments are listed in Table 11. Note that output 24 is the commonly used Switched Preview by default. These default assignments can be changed if desired. Any Kayenne internal or external source can be configured to appear on any output connector.

Note Numbered outputs on the rear of the Kayenne Video Processor Frame are active only when the corresponding board (ME A - ME D) is installed and operational.

Table 11. Default Output Assignments

ME A		ME B		ME C		ME D	
Output #	**Signal**	**Output #**	**Signal**	**Output #**	**Signal**	**Output #**	**Signal**
1	Pgm A	13	ME1 A	25	ME2 A	37	ME3 A
2	Pgm B	14	ME1 B	26	ME2 B	38	ME3 B
3	Pgm C	15	ME1 C	27	ME2 C	38	ME3 C
4	Pgm D	16	ME1 D	28	ME2 D	40	ME3 D
5	Pgm pA	17	ME1 pA	29	ME2 pA	41	ME3 pA
6	Pgm p2	18	ME1 p2	30	ME2 p2	42	ME3 p2
7	Aux 1[a]	19	Aux 4[a]	31	Aux 8	43	Aux 14
8	Aux 1[a]	20	Aux 4[a]	32	Aux 9	44	Aux 15
9	Aux 2[a]	21	Aux 5	33	Aux 10	45	Aux 16
10	Aux 2[a]	22	Aux 6	34	Aux 11	46	Aux 17
11[b]	Aux 3[a]	23[b]	Aux 7	35[b]	Aux 12	47[b]	Aux 18
12[b]	Aux 3[a]	24[b]	Sw Pvw	36[b]	Aux 13	48[b]	Aux 19

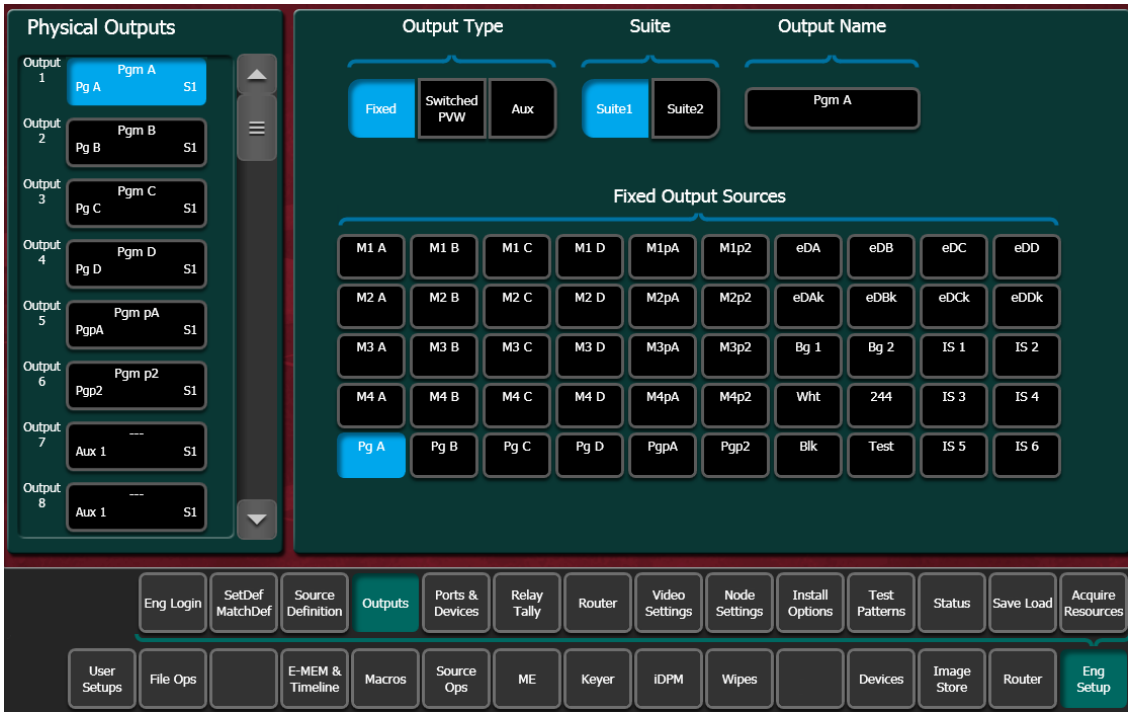
[a] Ready for Aux Pair configuration.

[b] SetDef capable output.

Outputs Menu

The Outputs menu is used to change the Kayenne system output assignments. The current output assignments can be viewed in this menu. Press **Eng Setup**, **Outputs** to access this menu (Figure 116).

Figure 116. Outputs Menu



The scrolling list of data pads along the left side of the screen shows the currently assigned output for each listed module output connector. The right side of the menu shows the items available for assignment to that output connector. Different choices appear, depending on the **Output Type** selected.

To Change Output Assignments:

1. Touch one of the output data pads from the left scrolling list to select it and display information for that output connector.
2. Select the appropriate Output Type:
   - Select **Fixed** if the output is to be dedicated.
   - Select **Switched PVW** if the output will be used for switched preview. Switched preview can be assigned to multiple outputs.
   - Select **Aux** if the output will be an Aux bus (see *Aux Bus Configuration on page 164* for more information).
3. The **Suite 1** and **Suite 2** buttons are used to assign the currently selected output to a suite. The default setting is **Suite 1**.

4. Touch the button of the desired item for the selected output connector from the list on the right. The change is immediate, and can be viewed on a connected monitor. (Switched Preview mode does not offer any output sources to select from).

5. If desired, touch the **Output Name** data pad to change the name of the output using the pop up alphanumeric keypad or standard keyboard. This name appears on the data pad of the scrolling list on the left. Up to 12 characters can be entered.

Aux Bus Configuration

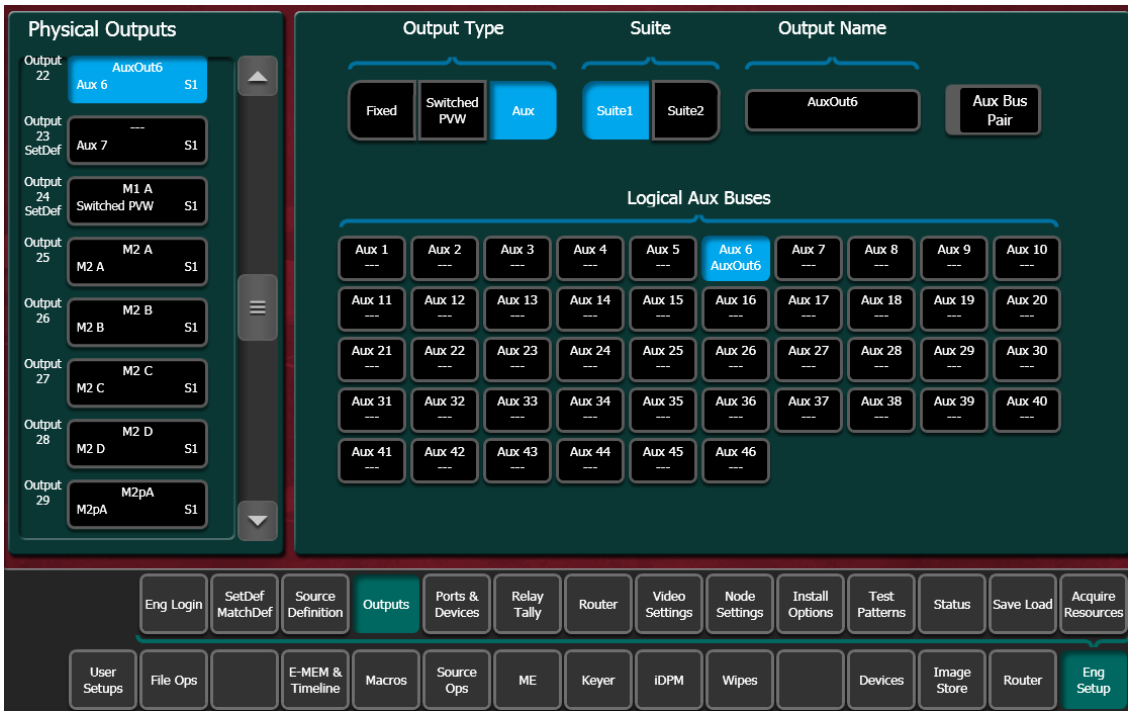
Aux buses can be used to send dynamically selected sources to an output. Aux bus sources are selected using the Local Aux panel, delegating an ME for Aux Bus control, or using Remote Aux Panels delegated to control that Aux bus.

The number of Aux buses on a Kayenne system varies, depending on how the physical outputs have been mapped. Any output that is not configured as Fixed or Switched Preview is available for use as an Aux bus.

Video Only Aux Bus

When the **Aux Bus Pair** button is not selected, the Aux bus is configured as a single video-only output (Figure 117).

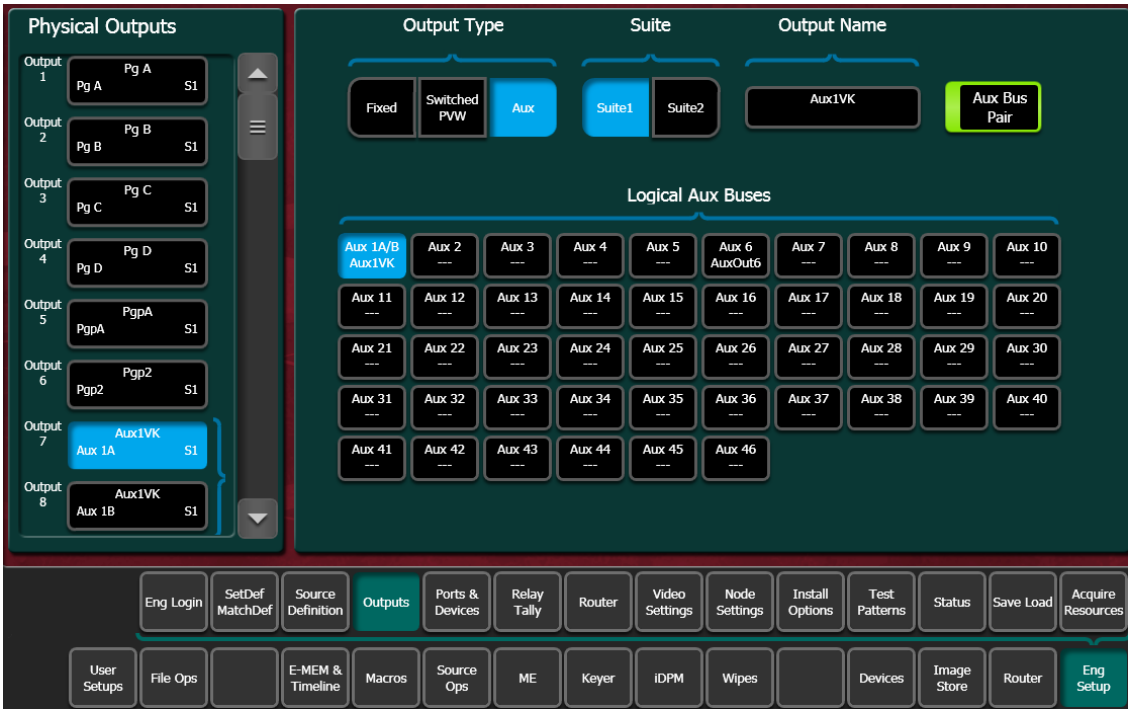
Figure 117. Output Assignments Menu, Video Only Aux Bus



Aux Bus Pairs

Touching the **Aux Bus Pair** button configures the Aux Bus as an Aux Pair (Figure 118).

Figure 118. Output Assignments Menu, Aux Bus Pair



Aux Pairs are two physical Aux Buses that have been configured to send a video and associated key (or another video) signal. Pairing of the video and key signal to be used on the Aux bus is defined in the Sources menu as explained earlier. Aux pairs are indicated on the menu with a bracket beside the two connector buttons. The Aux Bus pairs are also identified with A and B letter indicators. The Aux A signal is always a video signal.

Relay Tally Configuration

The Relay Tally menus are used to configure tally system relays. These menus include multiple tally calculators, three different tally calculation methods, and user assignment of tally relays. The results of the tally calculators are applied to the tally relays on the GPI/Tally connectors on the rear of the Kayenne Video Processor Frame. Those relays can control external tally lights. The Relay Tally Menus also allow the user to map Engineering Sources to the tally relays. Up to 96 tally relay outputs are available on a Kayenne Video Processor Frame, 24 for each installed Controller or ME board. Tally is recalculated and refreshed every field.

Note Tally Contribution is an alternative electronic tally mechanism that can be assigned to a Kayenne Video Processor Frame serial port. Refer to the separate *Grass Valley Switcher Protocols Manual* for technical information.

About Tally Systems

In general, a tally system identifies which sources to the switcher contribute to the final picture at a selected point in the video chain. The identification is communicated by activating relays in the Video Processor Frame. The method by which the sources are determined is called the tally calculation.

The tally calculation begins at a point in the video path and then traces the path of the signals upstream to their original video (and key) sources. The state of the switcher affects tally. For example, tally on a true clean feed only includes sources that contribute to the main output, but tally on a programmable clean feed can include sources that do not contribute to the main output.

When configuring a tally calculation, the user chooses the starting video path point (called a tributary) to trace back to its origin. The main On Air tally video output point is Pgm-Pst PGM A, but Pgm-Pst PGM B, Pgm-Pst C, and Pgm-Pst D are included in case these alternate programmable clean feed outputs have keys (or utility buses) that don't contribute to the PGM A output.

The On Air tally calculations are essential for switcher operation. (One calculator is reserved for On Air.) This tally calculation forms the basis for On Air indication (panel, camera tally lights, etc.), and other functions such as external device Auto Start, Off Air Advance, or router protections. On Air tally calculations normally start at the Pgm-Pst PGM A-D outputs.

User tally calculations can be used for purposes other than On Air tally. These tally calculations still trace the video path up stream from the specified points in the video path, but the starting point does not necessarily have to be a program output. For example, a Look Ahead tally begins at the Pgm-Pst Look Ahead Preview (LAP). When a transition is not in progress this virtual output is not on air.

The Output tally calculator indicates which sources contribute to designated outputs. For example, an ME Iso tally is a user configured Output tally set up to begin at an ME's PGM A, B, C and D. The tally would indicate what contributes to the ME's program outputs but not anything down stream of it. The tally would be the same whether or not the ME was On Air.

The Look Ahead tally calculator indicates which sources will be on air if a main transition is performed on the selected level. One way this can be used is for a second set of tally lamps on a camera to alert the camera operator that his camera is next to be taken on air. Many control room monitor walls also include a secondary tally indicator for Look Ahead. Look Ahead tributaries do not necessarily leave the switcher as video signals. For example, an ME has four program outputs but only two physical preview

outputs. The LAP information for all four program outputs may be included in a tally calculation.

However, if an ME is placed down stream of Pgm-Pst the On Air tally calculation can be configured to start at that ME's program outputs. If this situation is planned, it is recommended that aux buses be set up to provide the real program outputs for the switcher and the On Air calculation configured using those aux buses as the tributaries.

You can use more than one starting point for tally calculations. Programmable clean feed (FlexiKey) and DoubleTake allow the exclusion of video signals from the ME main output (PGM A) that appear on one of the other program outputs. Include the other program outputs with the ME main output (PGM A) as calculation starting points to tally all the On Air sources.

The Bus Selection tally calculator indicates which sources are selected on a specified set of switcher buses. The tally calculator using this method does not trace tributaries upstream; it only tells what sources contribute to the specified bus(es), even if the source is an ME. For example, a Bus Selection tally calculation could be set up to indicate which source is selected on the Pgm-Pst A bus, permitting audio-follow-video selections to be run by the tally system.

Relay Tally Calculator Menus

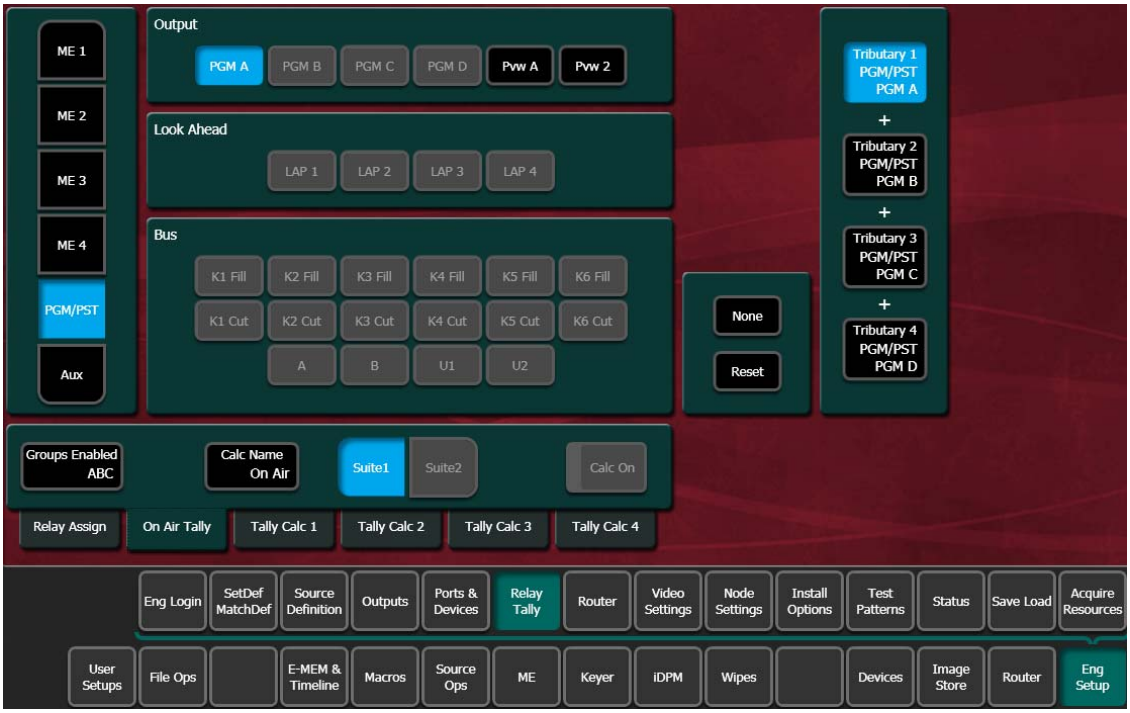
The Relay Tally Menus are used to select calculators, methods, and levels, name calculators, and assign items to Tributaries.

Kayenne has six independently running tally calculators. For example, the system can calculate On Air tally independently for suite 1 and suite 2, and at the same time can calculate Look Ahead tally, and ME output tallies for three MEs. The first of the tally calculators is reserved for On Air tally calculations for the currently logged in suite (1 or 2). The other four tally calculators can be assigned to either suite 1 or suite 2.

Up to four tributaries can be included as the basis for each tally calculation. For example, multiple program outputs of the PGM/PST bank are typically included in the On Air tally calculation. The final tally source list is a union of the sources found on each of the four tributaries. If aux buses are used as the program outputs of the switcher, up to four aux buses can be the basis of On Air tally calculations. Tally calculations do not require actual outputs, for example, LAP tributaries are virtual and may never leave the ME.

Selecting an **On Air Tally** or **Tally Calc 1-4** tab delegates the menu controls to the selected calculator. The On Air Tally Menu is shown in Figure 119.

Figure 119. On Air Tally Menu, PGM/PST Outputs



Calc On - Turns the delegated Tally Calculator on or off. When on, the **Calculation Enables** button on the separate Relay Assign Menu will be activated for that calculator.

Groups Enabled - Reports which Tally Groups are currently assigned for that calculator, by group letter (A, B, C, D, corresponding to Tally/GPI connectors 1-4 on the rear of the Kayenne Video Processor Frame). To Enable a Tally Relay Group, it must first be turned on, using the **Calc On** button for that calculator.

The first tally calculator name is fixed to **On Air**. Since the On Air Calculator is restricted the Look Ahead and Bus buttons are disabled (grayed out).

Creating an On Air Tally Calculator Using MEs or PGM/PST

1. If necessary, login to the desired suite (**Eng Setup**, **Eng Login**).
2. Touch **Eng Setup**, **Relay Tally**, **On Air Tally** to access the On Air Tally menu. The Suite button for the current suite will be highlighted.
3. Touch a **Tributary** button on the right.
4. Touch an **ME** or **PGM/PST** button on the left.
5. Touch an Output button to assign that output of that ME or PGM/PST to that tributary. The name of the output is displayed on the Tributary button.

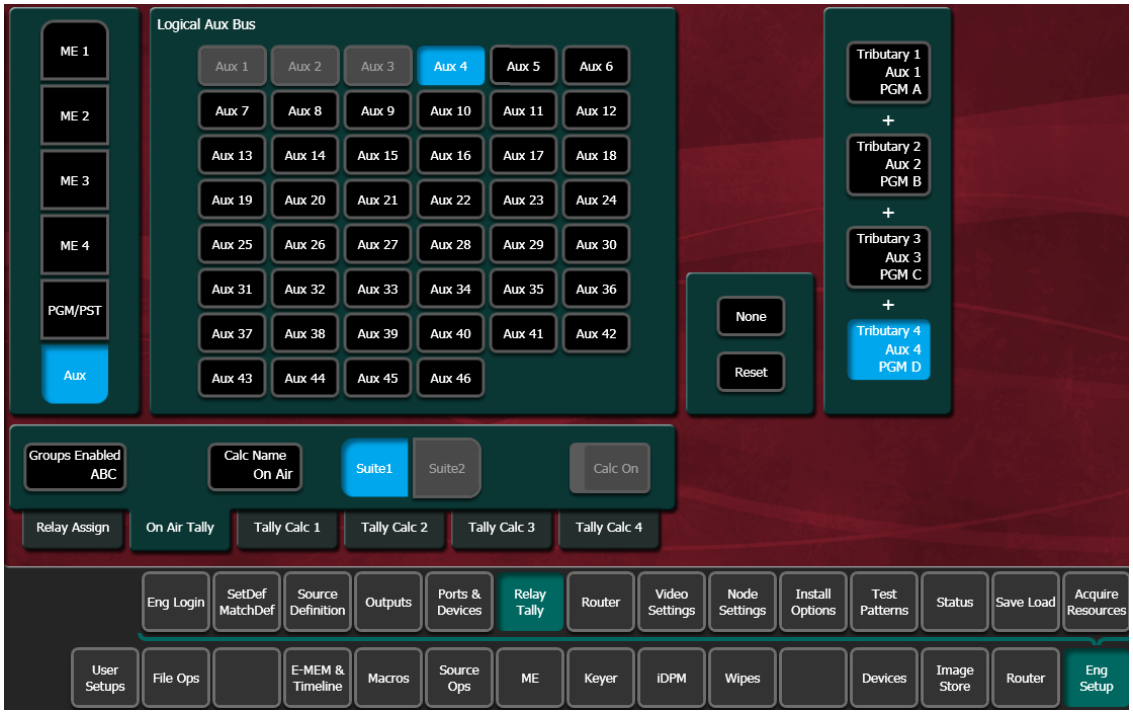
6. Repeat the steps above for other Tributaries for all the outputs you wish to assign for On Air Tally.

- Pressing the **None** button clears the assignment for that Tributary.
- Pressing the **Reset** button clears all the assignments to all the Tributaries.

Creating an On Air Tally Calculator Using Aux Buses

Use the steps above, but select **Aux** on the left, and choose the Aux bus(es) being used for program output to the On Air calculation (Figure 120).

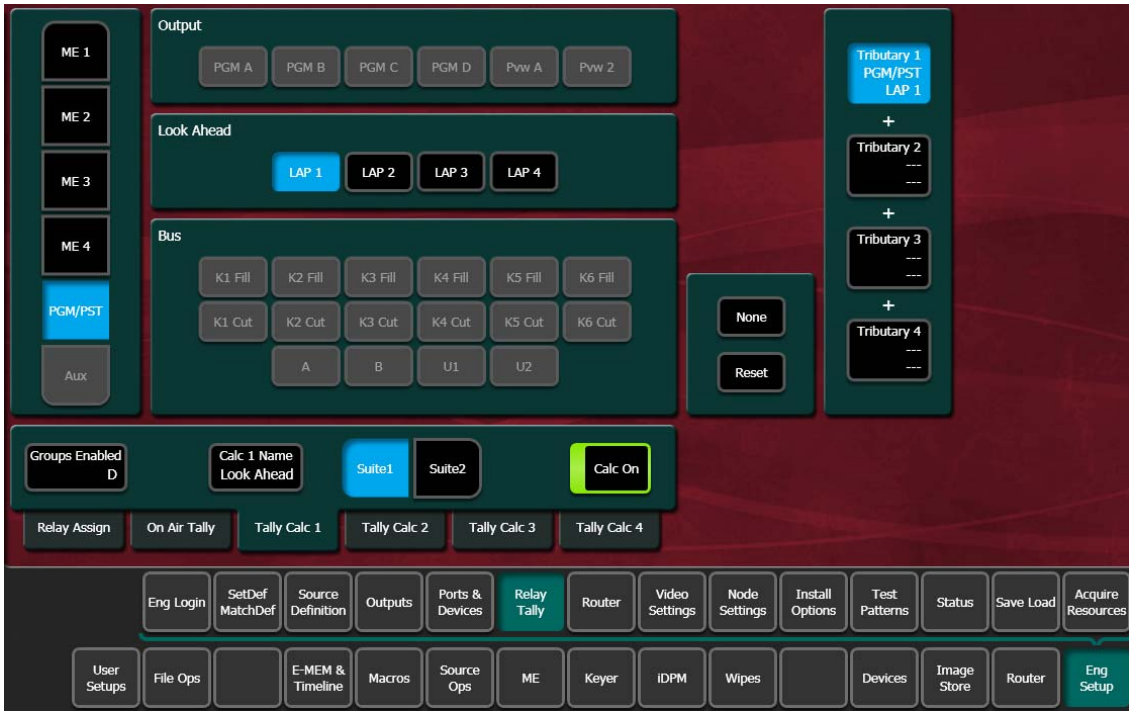
Figure 120. On Air Tally Menu Aux Outputs



Creating a Look Ahead Tally Calculator

1. Touch **Eng Setup**, **Relay Tally**, **Tally Calc 1-4** to access a Tally Calc menu.
2. Touch the **Calc 1-4 Name** button to open a keypad you can use to name that calculator.
3. Choose the **Suite 1-2** button for the Kayenne suite that will use this calculator.
4. Touch a **Tributary** button on the right.
5. Touch an **ME** or **PGM/PST** button on the left.
6. Touch a LAP 1-4 button to assign that look ahead to that Tributary (Figure 121).

Figure 121. Look Ahead Preview Tally



7. Repeat Step 4 through Step 6 to assign all the desired look aheads to the calculation.

8. To activate this calculator, touch the **Calc On** button so it is highlighted.

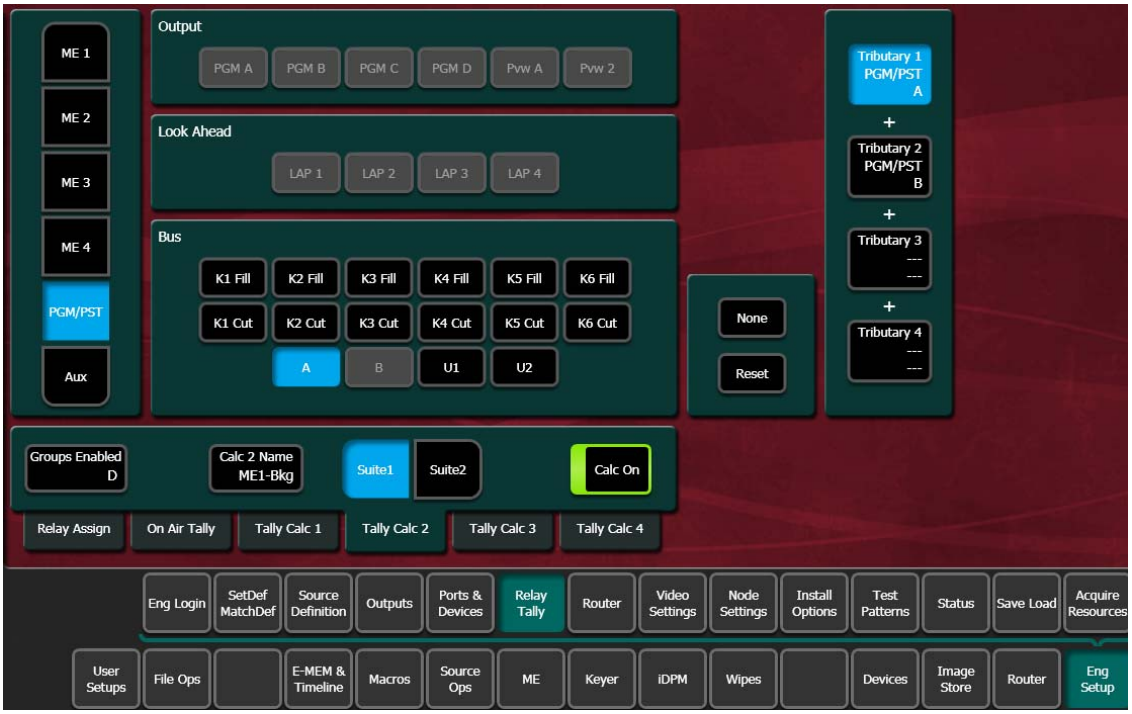
Note Though the calculator is activated, it will not actually affect Video Processor Frame relay contacts until that calculator has been assigned to a Tally Group (see *Relay Assign Menu on page 171*).

Creating a Bus Tally Calculator

Bus tallies report what source(s) are currently selected on a particular set of buses, and does not trace tributaries upstream.

Use the Look Ahead Preview procedure above, but choose PGM/PST, ME, or Aux, on the left, and then select the desired bus in the center of the screen. Repeat for all the buses you wish to tally for that (Figure 122).

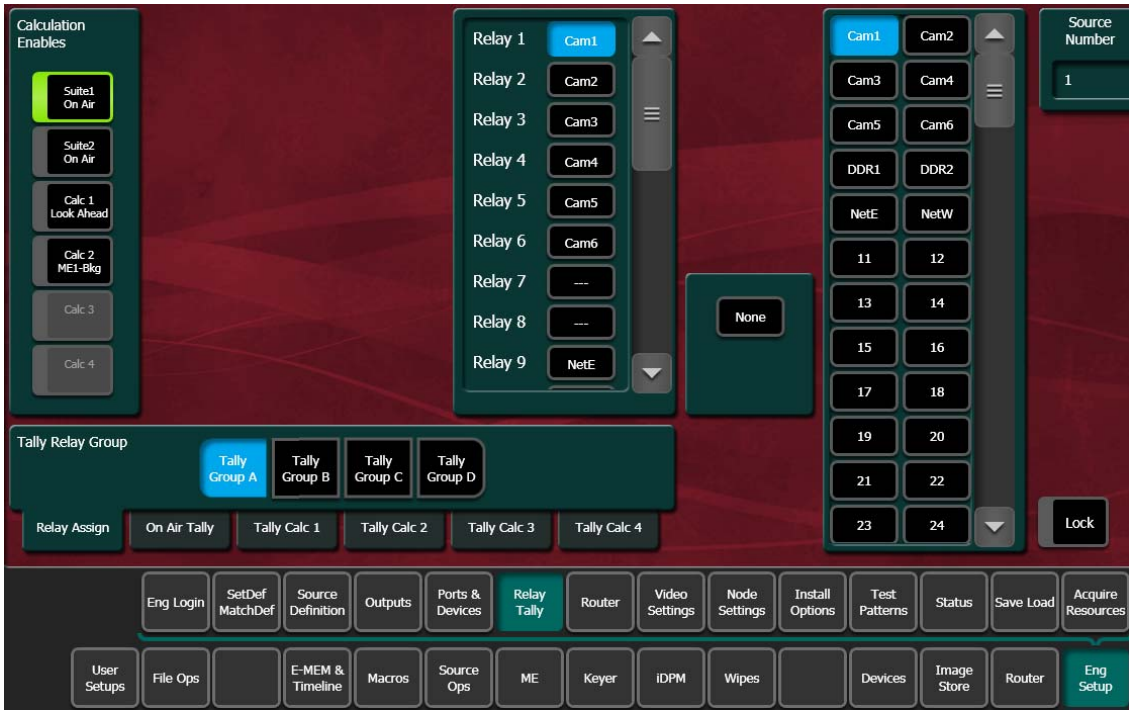
Figure 122. Bus Tally



Relay Assign Menu

The Relay Assign menu is used to assign the Tally Calculators to Relay Groups, and assign Engineering Sources to relays on the Video Processor Frame GPI/Tally connectors. Touch the Relay Assign tab to access the menu (Figure 123).

Figure 123. Tally Relay Assign Menu



Tally Relay Group - Delegates the Menu controls to configure the selected Tally Group. The A, B, C, and D Tally Groups correspond to Tally/GPI connectors 1 through 4 on the rear of the Kayenne Video Processor Frame.

Calculation Enables - Assigns the Tally Calculators to the delegated Tally Group. When a calculator button is off, that calculator's results will not trigger relays for that Tally Group.

Note A calculator must be activated with its **Calc On** button before it can be assigned to a Tally Group (see Step 8 on page 170).

Assigning Sources to Tally Relays

Sources are assigned to specific relay connectors with the controls on the upper right.

1. Touch the button for the desired Relay in the center of the menu.

2. Choose the Engineering Source in the scrolling list on the right. The name of the source will be displayed on the Relay button.

- The **None** button clears the current Source assignment for the selected relay.
- The **Source Number** data pad and scroll dial can be used to quickly select the desired Engineering Source.
- The **Lock** button can be used to prevent the source list from scrolling automatically to that relay's source. This permits easy selection of adjacent sources.

User Setups

User Setups are intended primarily for operators, to allow them to customize their working environment. However, some settings affect basic system operation. The engineer in charge of a Kayenne system should create and save at least one default set of User Setups (Panel Prefs and Suite Prefs) so the system can be set to a known state.

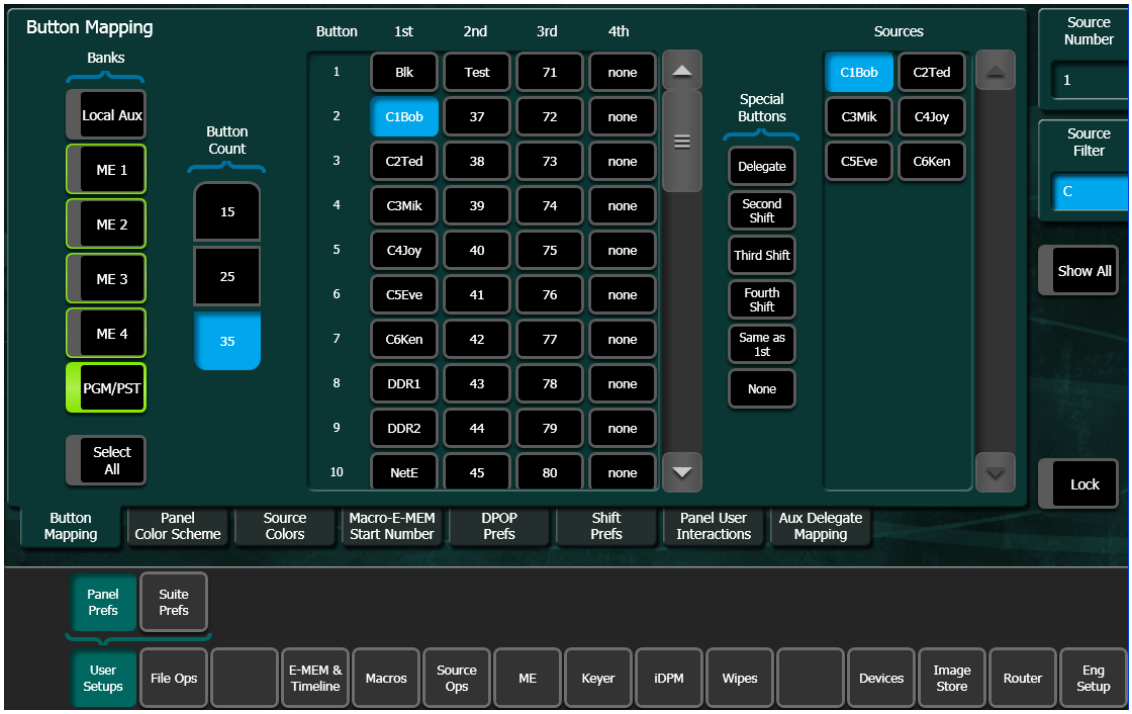
Particularly important settings are described briefly below. Refer to the separate *Kayenne User Manual* for more information about User Setups.

Panel Prefs

Button Mapping Menu

Button mapping determines what sources are selected by the buttons on the Control Panel MEs. The Button Mapping menu is accessed via **User Setups**, **Panel Prefs**, **Button Mapping** (Figure 124).

Figure 124. Button Mapping Menu



Select the desired Bank(s) on the left, a Source Select button on the scrolling list in the center of the menu, then assign a source to that button from the scrolling list on the right.

- The **Button Count** settings identify the size of the bank (15, 25, or 35 Source Select Buttons.
- The **Source Number** data pad and knob can be used to quickly scroll through and select sources.
- The **Source Filter** data pad opens a keyboard allowing entry of an alpha-numeric source name filter. Only source names that begin with the entered text will be displayed in the scrolling to the immediate left.
- The **Show All** button clears the source filter.

Suite Prefs

Source Patch Menu

The Source Patch menu controls what source names are displayed on the Control Panel and Menus, and permits patching of engineering sources to logical sources.

Default Keyframe

Default Keyframe settings are applied when an empty register is recalled and when the **CWB** (Clear Working Buffer**)** button is pressed in the Master EMEM Module (**EMEM Edit**, **CWB** button) of the main panel. The Default Keyframe menu is used to learn the current Kayenne panel state to the system's Default Keyframe. Individual settings for each MEs are stored in the Default Keyframe, so different states can be saved for different MEs, if desired.

The Default Keyframe menu is accessed by touching **User Setups**, **Suite Prefs**, **Default Keyframe** (Figure 125).

Figure 125. Default Keyframe Menu

To Learn a Default Keyframe:

1. Setup the entire Kayenne Control Panel to the desired state.
2. Press the **Learn** button in the Default Keyframe pane.

You will want to save this setting with your baseline Suite Prefs file.

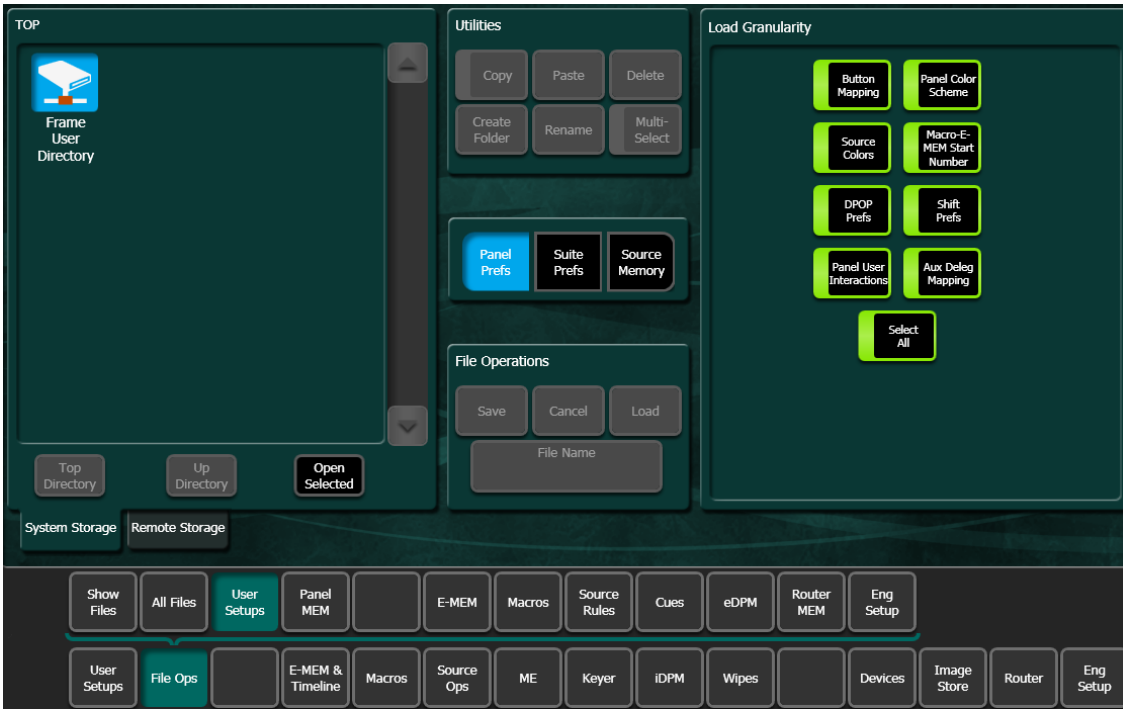
Note Individual Default Keyframe settings are saved for each Kayenne ME.

Configuration File Save and Load

Kayenne File Browser

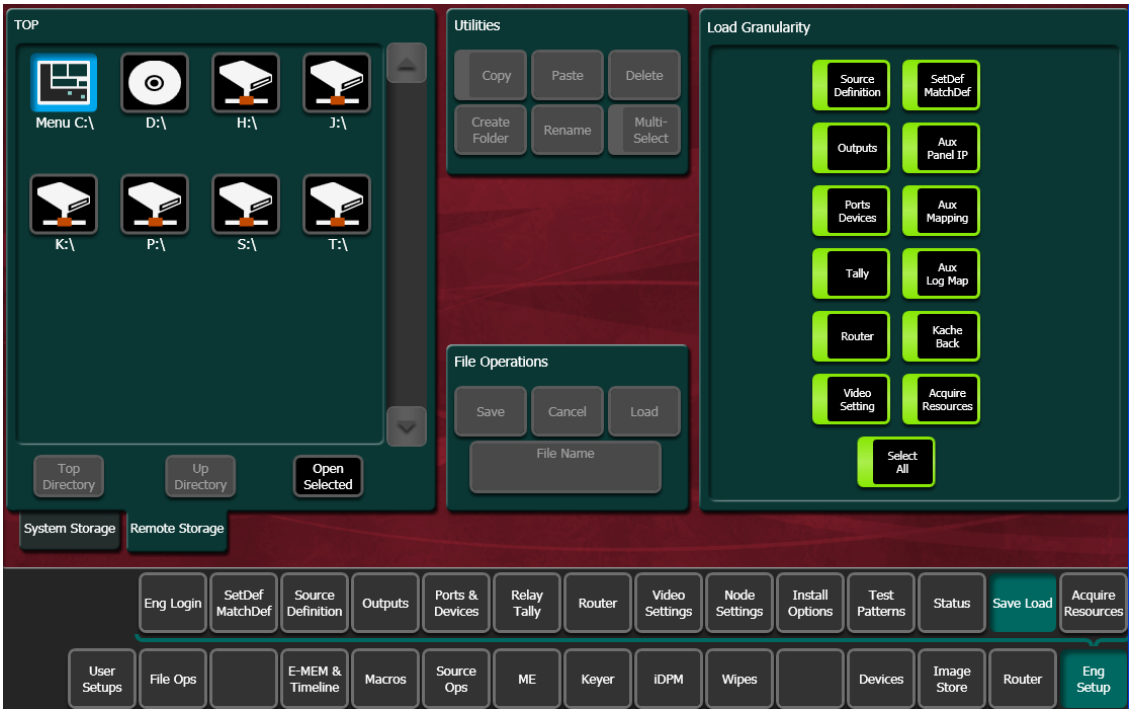
The Kayenne system has a file browser. You can browse through folders on the local Kayenne Menu hard disk, the Kayenne Video Processor Frame, and the entire network file hierarchy of mapped drives. The various browser menus can be accessed via the **File Ops** menu tab (Figure 126).

Figure 126. Files Ops, User Setups Menu



Eng Setup files can be accessed two ways, via **File Ops**, **Eng Setup**, or via **Eng Setup**, **Save Load** (Figure 127).

Figure 127. Eng Setup Save-Load Menu



File Storage Organization

The file browser gives you great flexibility for choosing and creating storage locations for your files. Any number of folders can be created in various locations. File folders and the files themselves can be named in any manner. To prevent accidentally saving and loading incorrect files, your facility should establish file storage and naming conventions and follow them consistently.

The engineer in charge should create default Eng Setup, Panel and Suite Prefs files that are not to be modified by anyone. These can provide a known starting point for users when they build their own preference files.

Kayenne Drive Access

The Kayenne File Operation menus can access directories located on the Compact Flash in the Video Processor Frame (System Storage) and the Menu panel hard drive (Remote Storage). Local and network drives mapped on the Menu panel's Windows system are also accessible (Remote Storage). Standard Windows functionality automatically maps all local drives during startup. Mapping network drives to a drive letter using the Windows Explorer allows them to appear at the top of the File Operation menus on that menu system.

Files saved to the **System Storage**, **Frame User Directory** will be available to any Kayenne system user.

Files saved to the **Remote Storage**, **Menu C:** location on the Kayenne Menu Panel will be available to any user of that Menu Panel. Multiple Kayenne Menu panels operating with that Kayenne system will not be able to access files stored at this location on another Menu Panel, unless drives are mapped.

Files can also be saved to an external medium, like a USB Memory Stick, and then removed for personal storage unavailable to other users.

Save important files to multiple locations (for example, to the Video Processor Frame, Menu Panel, and a USB Memory Stick), clearly identify the files (perhaps including the date in the file name), and store removable media containing these files in a safe place.

File Type Extensions

Kayenne files are named by the user when saved, and this name appears below the icon in the Kayenne browser. The extension for each Kayenne system file type is listed in Table 12.

Table 12. Kayenne System File Extensions

Icon Example	File Type	Extension
	Panel Prefs	.GVC .GVF .GVJ
	Suite Prefs	.GVS .GVZ
	Source Mem	.GVM
	Eng Setup	.GVE .GVH .GVN
	E-MEM Reg	.GVR
	R-MEM Reg	.GVY
	Panel Memory Reg	.PMEM
	Cues Reg	.GVB
	e-DPM Reg	.GVI
	Image Store	.KIF
	Macro Reg	.GVG
	Source Rules	.GVL
	Show Folders	.GVV

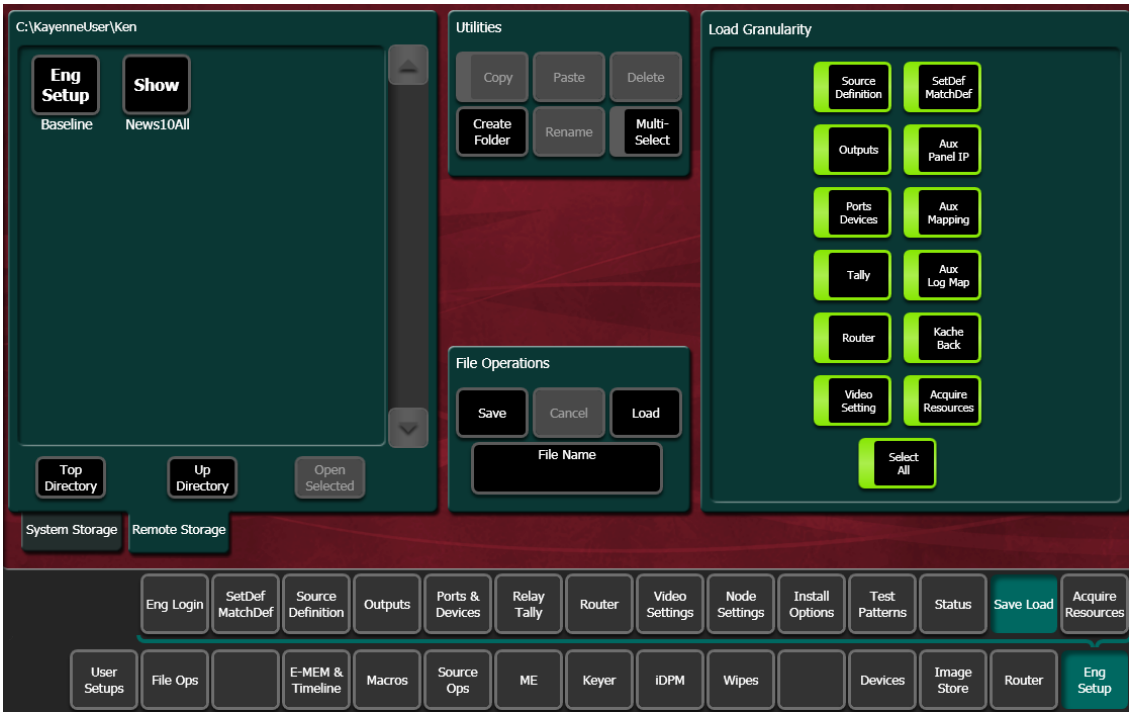
The extension is added to the file automatically when saved, but is not displayed as part of the file name itself by the Kayenne file browser. To prevent confusion, do not try to add an extension to the file name when saving files.

Non-Kayenne generated file icons show the file name with extension, and displays the extension letters in the icon.

Eng Setup File Operations

The Eng Setup, Save Load menu is used to save and load engineering setups information. Only this file format is supported in this menu (Figure 128).

Figure 128. Eng Setup Save-Load Menu



Left Navigation Pane

The left pane has tabs that select **System Storage** (Video Processor Frame) or **Remote Storage**. The **Top Directory**, **Open Directory**, and **Open Selected** buttons permit navigation through the file hierarchy.

Right Load Granularity Pane

The right Load Granularity pane allows selection of different categories of configuration data for save and load operations. The **Select All** button selects or deselects all the categories.

Utilities Pane

The Utilities pane buttons perform Copy, Paste, Delete and Create Folder operations and has a Multi-Select toggle button.

File Operations Pane

The File Operations pane is used to name, save, and load files.

To Save Eng Setup Files

1. Select all or individual file types to save.
2. Touch the **File Name** data pad and enter the name you wish the saved file to have.
3. Navigate to the desired destination directory using the buttons in the left navigation pane. You can create and name a new directory for the file with the **Create Folder** button in the Utilities pane if you wish.
4. Touch the **Save** button.

To Load Eng Setup Files

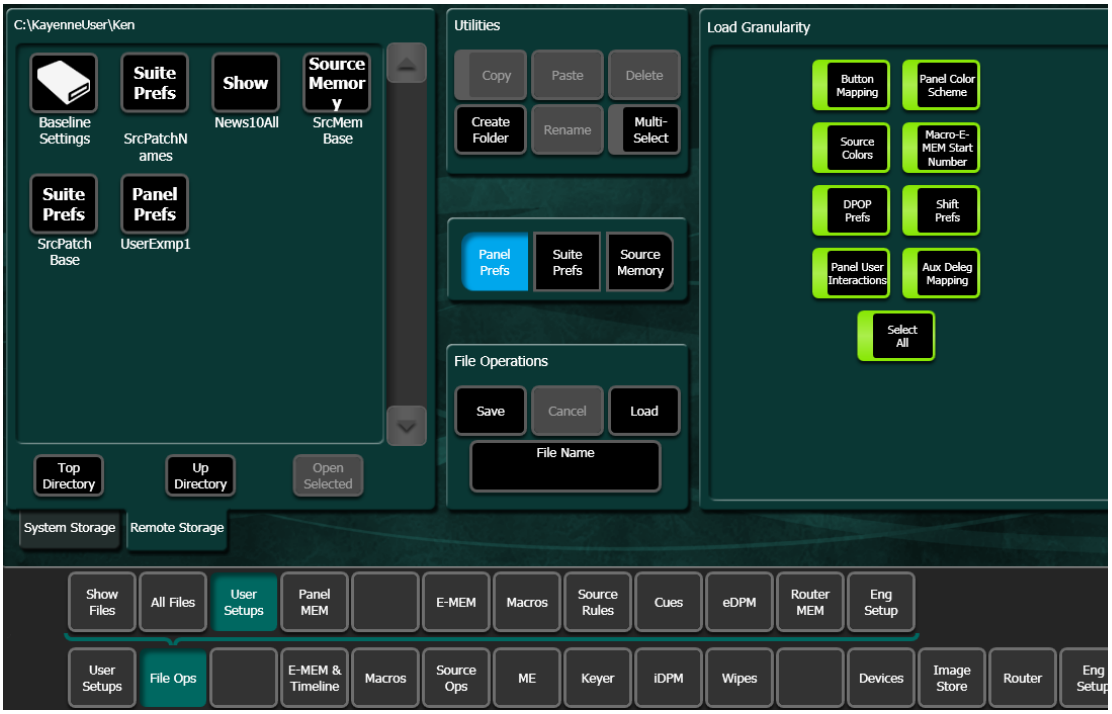
1. Navigate to the directory containing the files you wish to load, using the buttons at the bottom of the left navigation pane.
2. Select the file(s) to be loaded (choose the **Multi-Select** button for multiple files).
3. Touch the **Load** button.

CAUTION The Load button immediately replaces information the Kayenne system is currently using with the selected file information. When configuration files are loaded, significant changes to Kayenne system operation are possible.

User Setups File Operations

Panel Prefs, Suite Prefs, and Source Memory configurations are saved and loaded with the User Setups Menu, accessed via **File Ops**, **User Setups** (Figure 129).

Figure 129. Eng Setup Save-Load Menu



User Setups files are saved and loaded using the same methods as Eng Setups, except you can select **Panel Prefs**, **Suite Prefs**, or **Source Memory** configuration categories in the central pane.

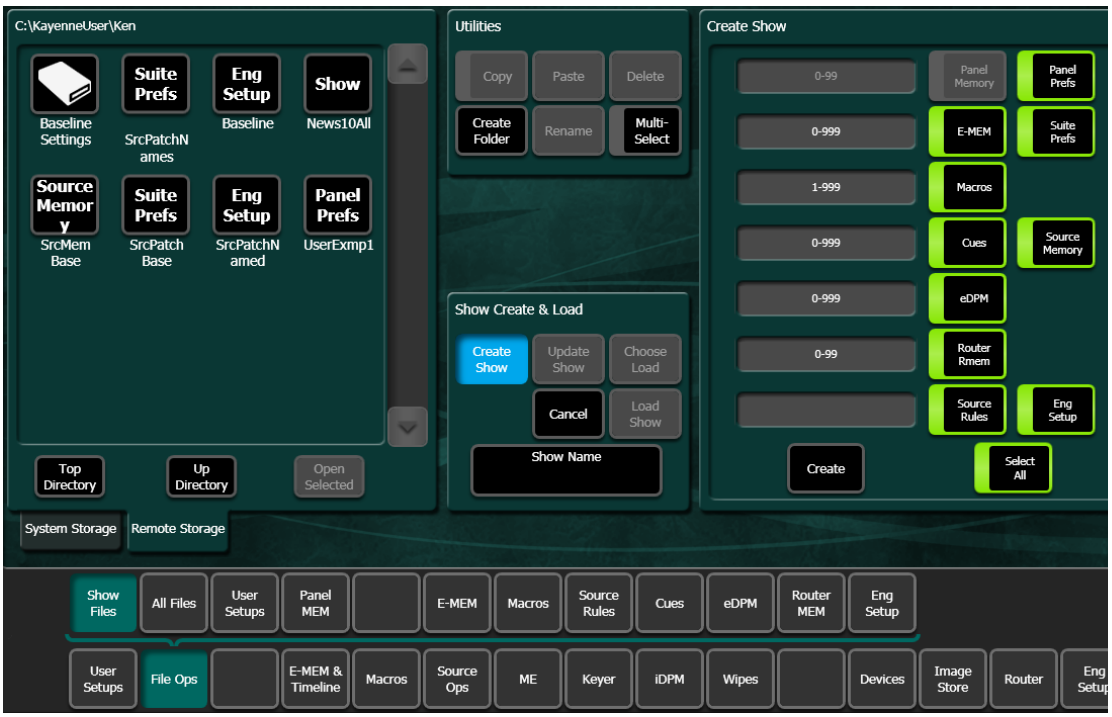
CAUTION The Load button immediately replaces information the Kayenne system is currently using with the selected file information. When configuration files are loaded, significant changes to Kayenne system operation are possible.

See the separate *Kayenne User Manual* for more information.

Show Files Operations

The Show feature can also be used to manage groups of files routinely used together for a particular production. The Show Files Menu is accessed via **File Ops**, **Show Files** (Figure 130).

Figure 130. File Ops, Show Files Menu



Show Files operations are similar to the other File Operations Menus, and can be used to create Show files that include Panel Prefs, Suite Prefs, and Eng Setup data.

CAUTION The Load button immediately replaces information the Kayenne system is currently using with the selected file information. When configuration files are loaded, significant changes to Kayenne system operation are possible.

See the separate *Kayenne User Manual* for more information.

Multiple Suite Resource Sharing

Introduction

The Resource Sharing feature permits the allocation of Kayenne system resources between two suites. This allows independent system operation from multiple locations without conflict.

Logical resource assignments allow the reuse of E-MEM effects in either suite regardless of which specific hardware resources were allocated.

Each suite can be run with its own Suite Prefs settings, and two different Panel Prefs preference settings can operate simultaneously in each suite. These preferences can be saved and loaded, permitting reliable Kayenne system changes to meet varying requirements.

The Kayenne system retains the current suite/resource relationships. If the system powers down or is reset, resource allocations for each suite are restored when the system returns to operation.

Collaborative Resource Sharing

Collaborative resource sharing permits a group of operators to have simultaneous access to a resource. For example, a video operator may want access to an ME so he can set up a chroma key, but the TD also wants control of that ME so that he can put the chroma key on air. This type of sharing is available simply by installing additional Control Panels.

Corroborative system operation has inherent limitations. Since one operator can change the settings used by another operator, it is assumed the operators are in close communication with each other so they can avoid system control conflicts.

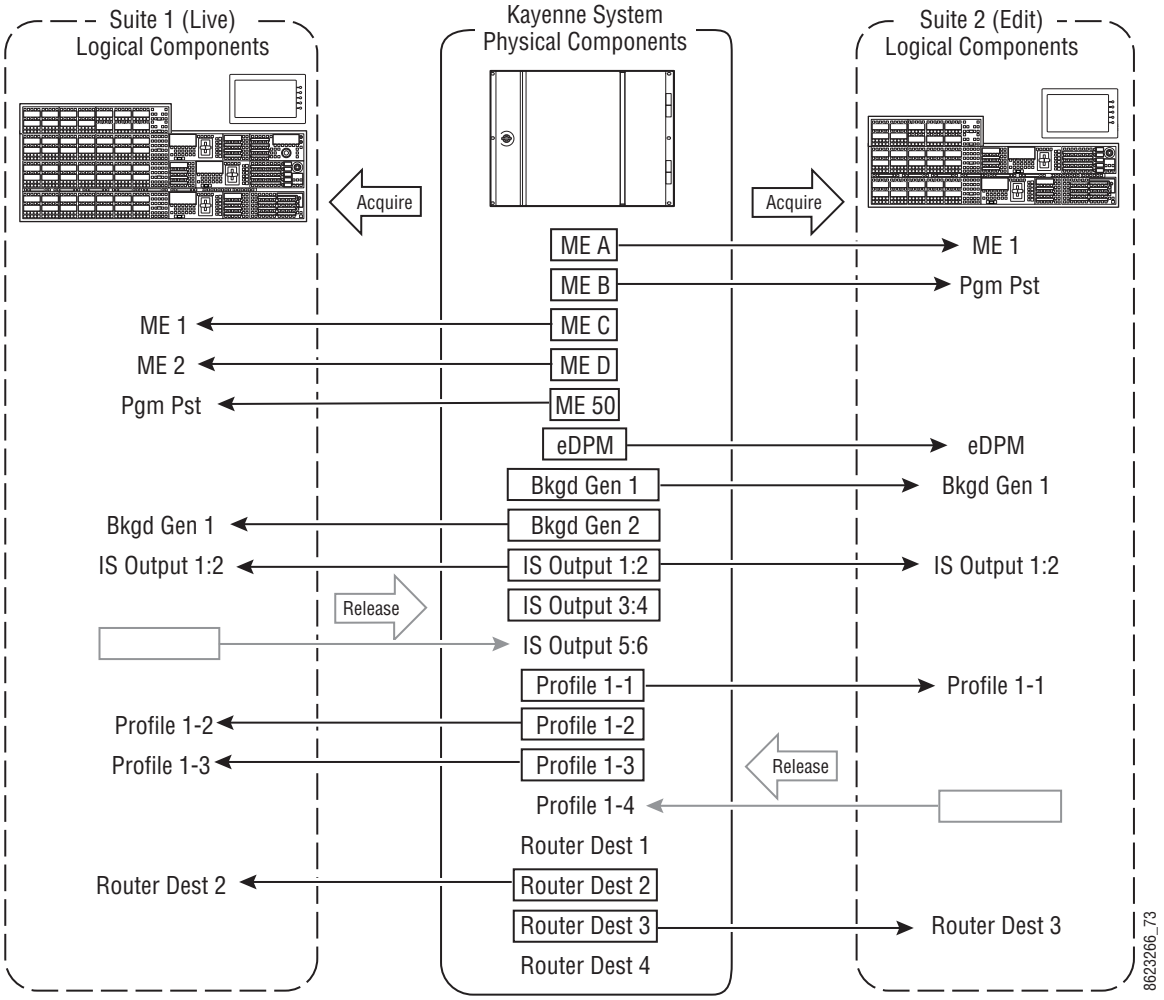
If two conflicting corroborative commands are sent, the Kayenne system ends in the state of the last command processed. For example, one operator could select a source on a bus of an ME at nearly the same time another operator selects a different source on that same bus. The output of that ME will momentarily display the first source and then switch to the last source selected, possibly causing an apparent flash on that output.

The Resource Sharing feature allows collaborative sharing of Kayenne system components with different User Prefs. For example, when a smaller 25 source panel is used in a corroborative environment with a larger 35 source panel, the button mapping for the two panels must be different because of the different number of source buttons available.

Independent Resource Sharing

Independent resource sharing isolates an operator or group of operators from other operators, by defining two separate suites. When one suite has acquired a resource, only the operator or group of operators in that suite will be able to control it. An example of independent sharing is splitting a 4-ME Kayenne system into two independent 2-ME switchers (Figure 131).

Figure 131. Independent Resource Sharing Example

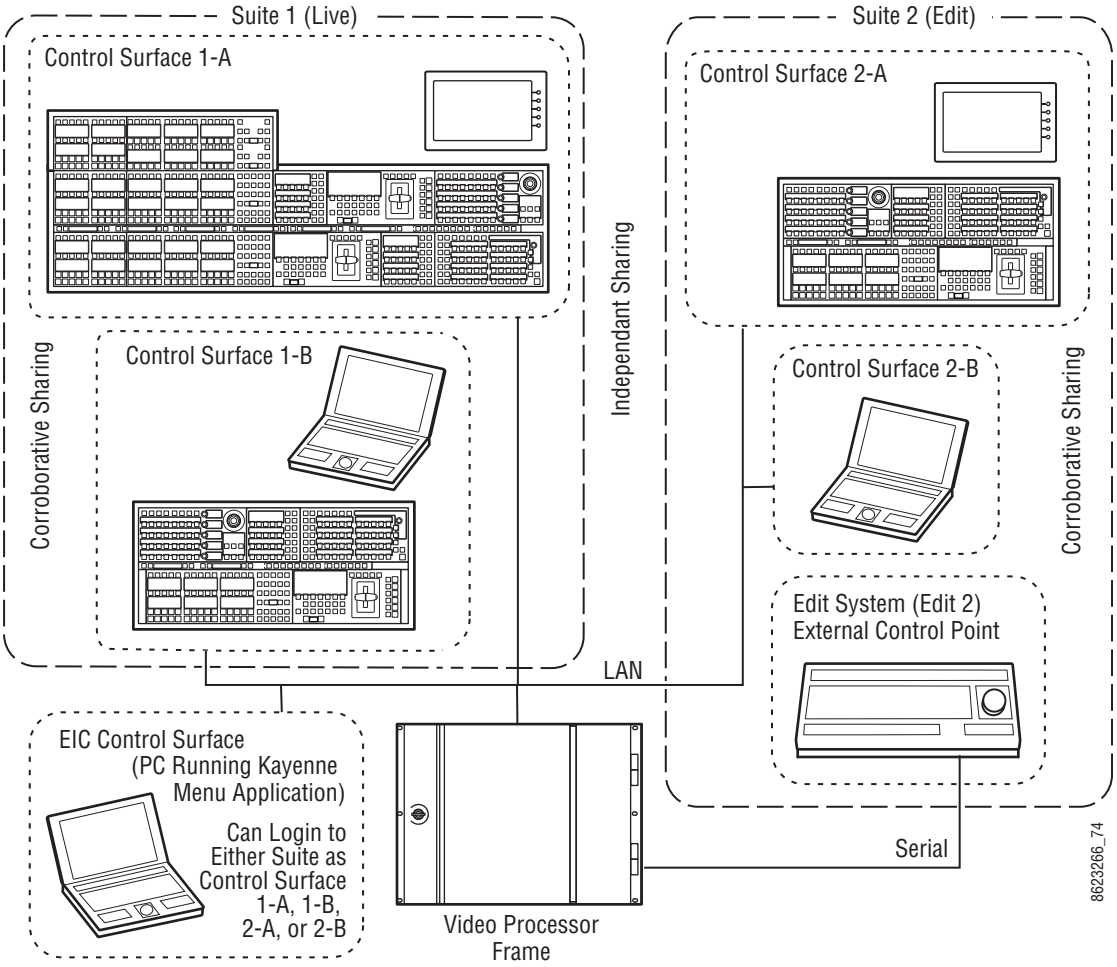


When a suite acquires a physical resource (like an ME) it uses that resource logically. For example, the ME B physical resource can be used as a logical PGM PST bank. Each of the two switchers created can therefore have their own PGM PST bank, and this allows effects built in one suite to operate correctly when loaded and run in the other suite. Effects will also run correctly in the same suite when run at a later time even if different physical resources have been acquired. Resources can be released by a suite. Once released, these resources can be acquired by the other suite. This permits dynamic reconfiguration of the system resources to meet varying operational requirements.

Suite

A suite is a grouping of one or more control surfaces (described below), and constitutes a coordinated working environment. Resources are attached to a suite rather than to individual control surfaces. All control surfaces in one suite have access to all resources assigned to that suite (collaborative sharing). Control surfaces in one suite are not able to control resources assigned to the other suite (independent sharing). Suites provide isolation from operators in the other suite (Figure 132).

Figure 132. Suites and Control Surfaces Example



Control Surface

A control surface is generally a group of panels which interact and provide a single user a unified work surface. An example of this type of control surface is a Control Panel and Menu Panel of a 4-ME Kayenne system. These panels combine to form a Technical Director's (TD) control surface. Other Control Panel modules or additional Menu Panels can be added to a control surface.

A control surface may also consist of a single item. For example, a Menu Panel (or a laptop computer running the Kayenne Menu application) can act as a separate control surface in a suite.

With Resource Sharing, up to two control surfaces can be created for each of the two suites. Each control surface can load its own Panel Prefs, so they can behave differently from one another. For example, different sources can be mapped to the source select buttons of the two control surfaces in the same suite, permitting quick access to different sources appropriate for each work location.

Control surfaces allow operators to collaborate on the same production while providing isolation between the operators themselves. For example, a smaller Control Panel set up in the studio for rehearsals will need access to the same effects as a larger Control Panel in the control room, but may need access to a specific set of sources. The smaller panel also requires a different button mapping. If a Menu panel is associated with each Main panel, the DPOP operations of one panel should affect its menu, not the other one.

Logical Aux Buses

Each suite can be configured to have its own set of numbered Logical Aux buses. This means effects built for one suite will run properly in the other as long as the physical connections for the same numbered logical Aux buses are similar. For example, if Aux bus 5 in one suite is used to feed that studio's monitor wall, using Aux bus 5 in the other suite to also feed that studio's monitor wall will make effects compatible between the suites. Note that these Aux buses have different internal paths and different physical connections, but share the same logical Aux bus number.

Remote Aux Panels

Remote Aux Panels are set up as part of a particular suite. They then become another control surface of that suite, with functionality limited to controlling only the Aux buses assigned to that suite.

External Control Points

Some types of Kayenne system control originate from an external location, like an edit controller, or a GPI contact closure. The Resource Sharing feature accommodates these control points differently.

A separate editor port can be assigned to each suite. An edit controller connected to each port is considered part of only that suite, and controls only the resources currently acquired by that suite.

GPI inputs themselves are not assigned to individual suites. Each suite can be configured to respond to particular GPI commands, with the other suite ignoring these commands.

Setting Up Resource Sharing

Preparation

Your Kayenne system should first be fully operational. For new customers, an initial system configuration will be required. This basic setup will become the baseline for suite 1 operation. This includes having an Eng Setup configured with the sources defined, suite 1 outputs assigned, suite 1 tally contacts connected and serial tally defined (if used), and any external interfaces (DDR, VTR.) should be installed and operational that will be used in suite 1.

Default Suite Prefs should also be defined and saved under a file name identifying its use for suite 1. A default Panel Prefs file should also be defined and saved identifying it as a default setting for control surface A of suite 1. All these files will become the starting point from which changes will be made to make full use of Resource Sharing.

When the above is accomplished and basic system functionality is confirmed, you can then set up suite 2, and more easily troubleshoot any configuration issues that may arise.

If you will be adding new Kayenne system components for use with Resource Sharing, all these components must be installed and configured on the network, using valid IP addresses. All control surfaces participating in Resource Sharing will also need to be in communication with the same Kayenne Video Processor Frame. After the primary Main panel has been installed and its connectivity verified, one new panel should be installed and its connectivity also verified before you install any additional panels. This will make it easier to troubleshoot any IP addressing problems that may occur.

Prepare Worksheet

A worksheet is helpful for planning your multi-suite installation and configuration. The worksheet should list all Control Panels, Menu Panels, and PCs running the Menu application, their IP addresses, and their suite and control surface associations. It should also list all Remote Aux Panels and which suite they belong to. Physical outputs should also be listed with their suite association and which Fixed output or Aux bus they are associated with, the main program and preview outs for the suite, etc.

Configure Control Surfaces

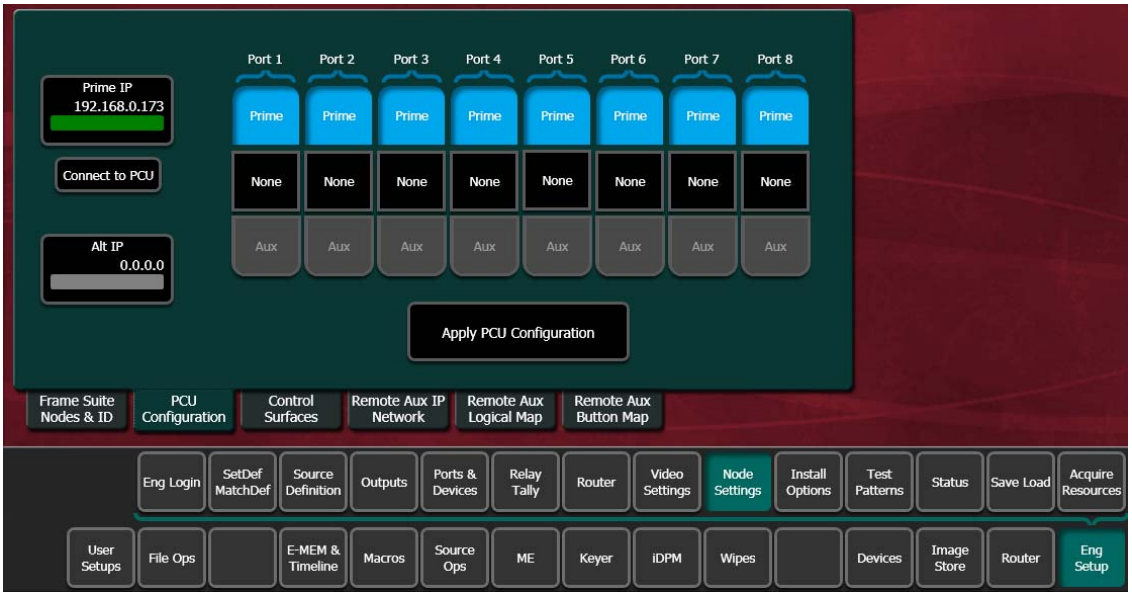
1. Touch **Eng Setup**, **Node Settings**, **Control Surfaces**, and enter the Alt IP address and name the control surface you are adding. Assign it to **Suite 2 Surface A**. If you are using an additional Menu Panel or PC for that suite, you can change it to **Suite 2 Surface A** at this time as well (Figure 133).

Figure 133. Control Surface Menu with Suite 2 PC and Panel

2. If you are using a single PCU with two control surfaces, touch **PCU Configuration**, enter the Prime IP address for the primary (Suite 1) control panel, and then reboot the Control Panel (on the Multi-Function Module, touch **HOME**, **Pnl**, **IP**, **BOOT**, **Yes**).

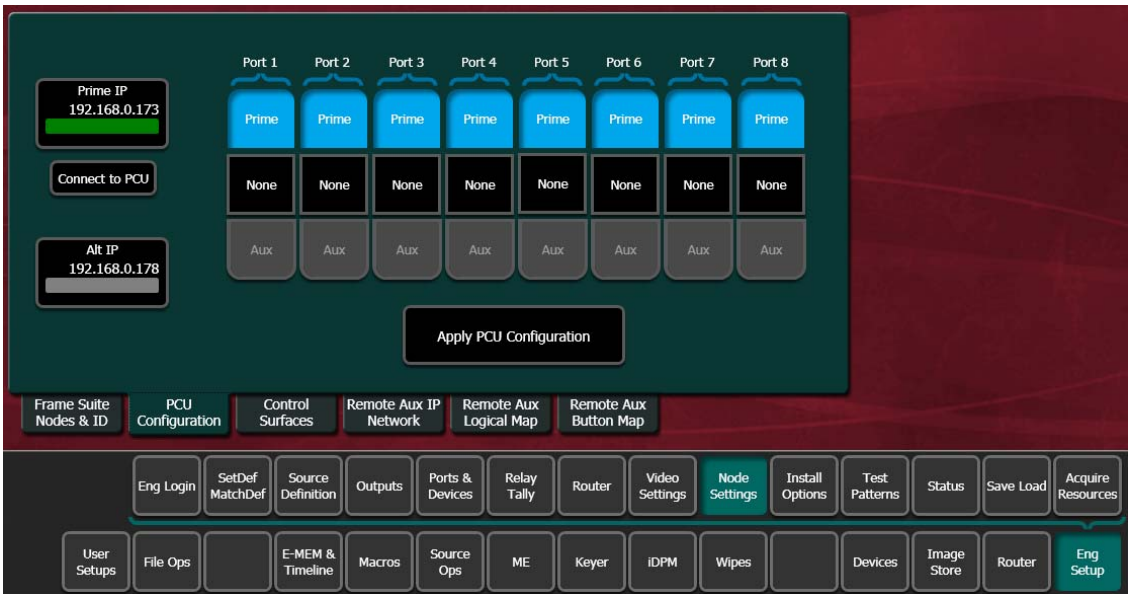
3. After the Control Panel reboots, touch **Eng Setup**, **Node Settings**, **PCU Configuration** and ouch the **Connect to PCU** button. The Prime IP indicator should go green (Figure 135).

Figure 134. PCU Configuration Menu



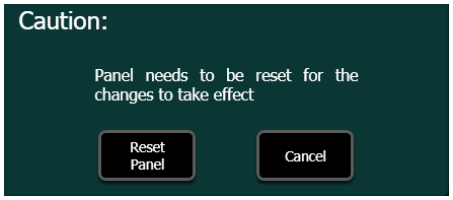
4. Now enter the **Alt IP** address for the second (Alternate) control surface for suite 2 (Figure 135).

Figure 135. PCU Configuration Menu



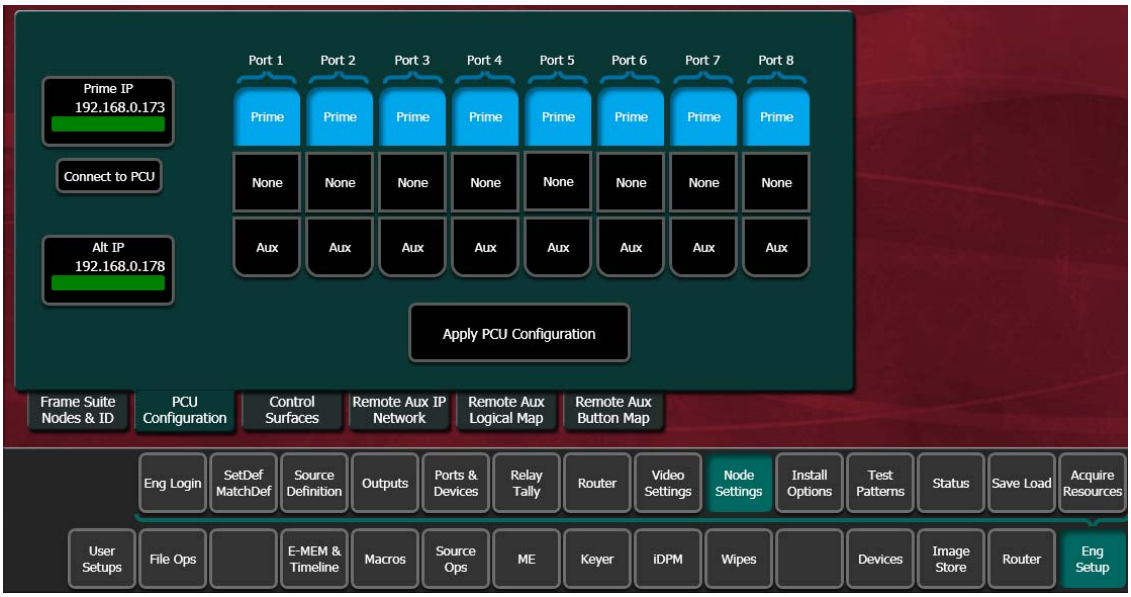
5. Touch **Apply PCU Configuration**. A reset message appears (Figure 136).

Figure 136. Control Panel Reset Message



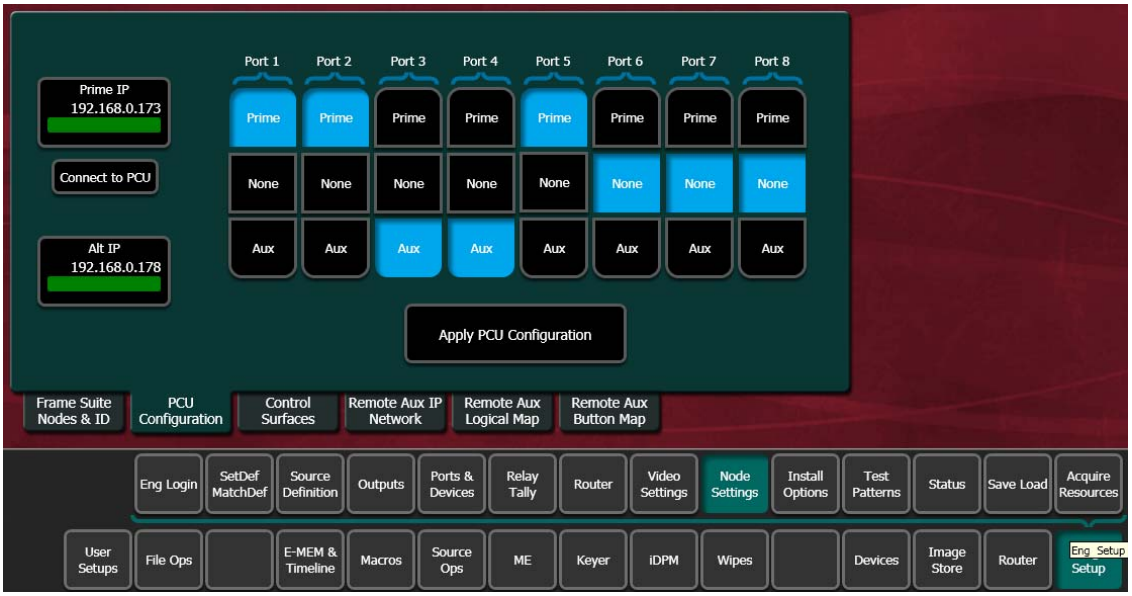
6. Touch **Reset Panel**. After the Control Panel resets you will see the Alt IP indicator is now green (Figure 137).

Figure 137. PCU Configuration Menu



7. Divide the PCU ports between the Prime and Alt control surfaces. Empty ports can be set to None (Figure 138).

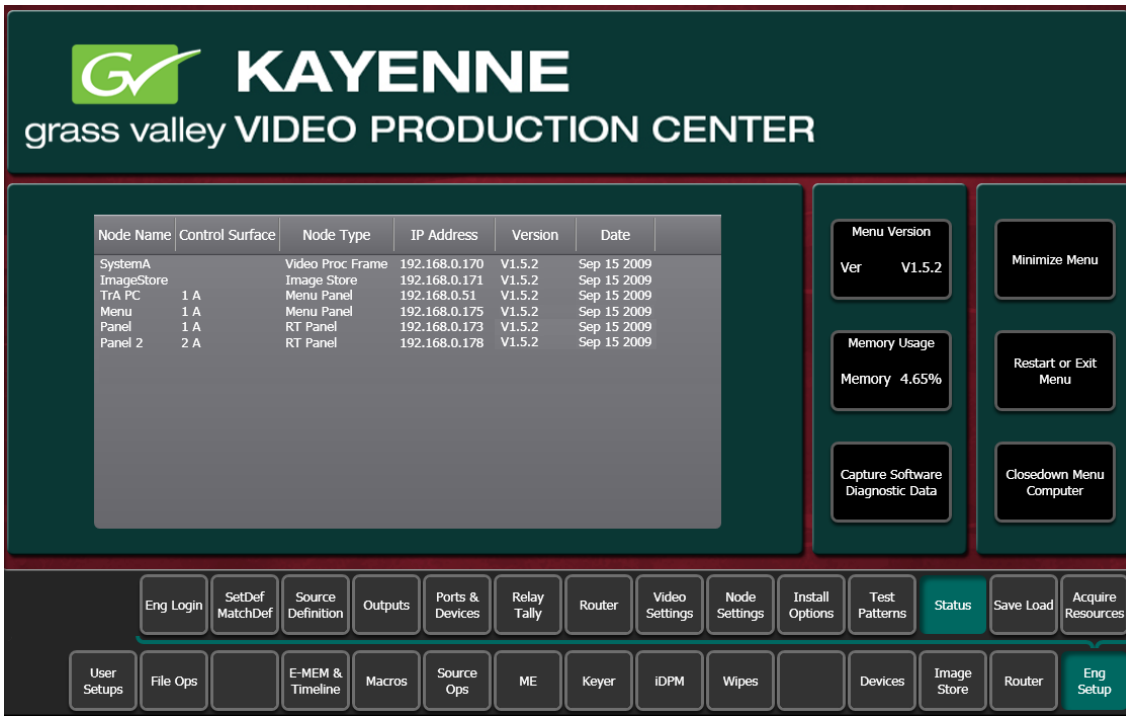
Figure 138. PCU Configuration Menu, Ports Assigned to Alt IP



8. Touch **Apply PCU Configuration** to send the port information to the PCU. The reset message reappears (Figure 136 on page 190).

9. Touch **Reset Panel**. This will re-establish system communications. After reboot the Status Menu will report the added control surface (Figure 139).

Figure 139. Status Menu with Additional Control Panel for Suite 2



Now only the specified PCU ports will operate with the control surface Stripes in each suite.

Note The Multi-Function Module on a Control Panel (**HOME**, **Panl**, **IP**) only reports the Prime IP address, even that Control Panel it has been configured to use the Alternative IP address.

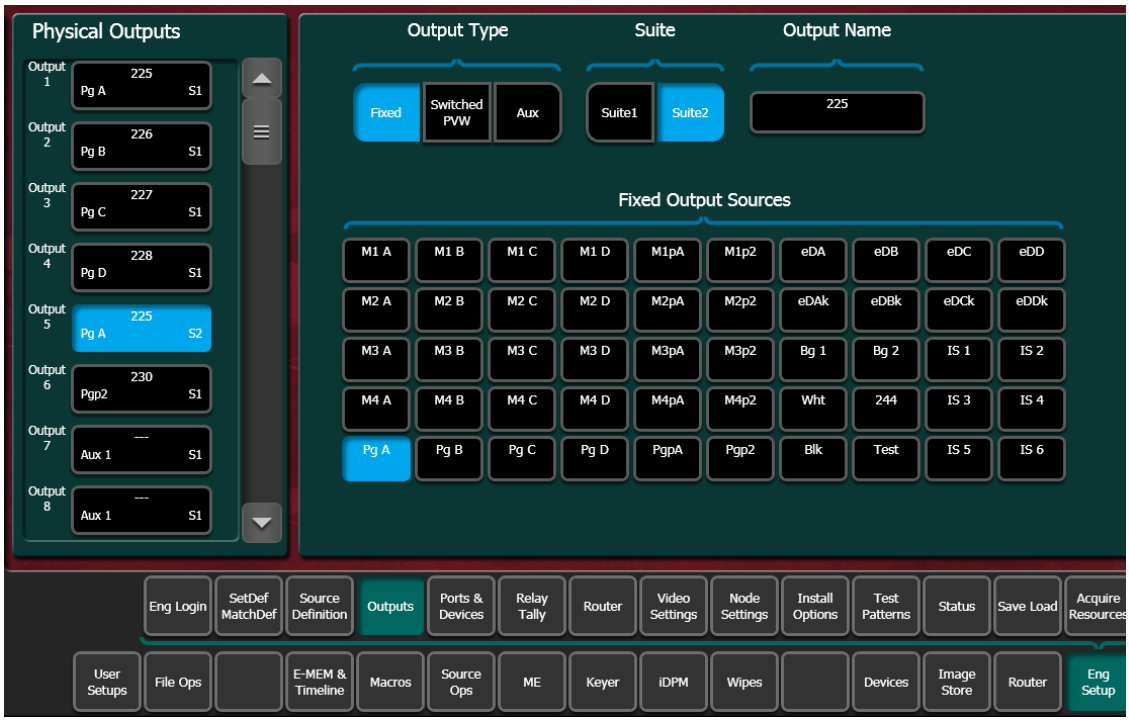
Define Default Multi-Suite Engineering Resources

Assign the following items as appropriate to suite 1 or suite 2:

- Outputs (Pgm, Switched Preview, Aux Buses, etc. accessed via **Eng Setup**, **Outputs**). An example showing reassignment of an output for suite 2 is shown in Figure 140 on page 192.
- GPI Outputs (**Eng Setup**, **Ports & Devices**, **GPI Outputs**).
- Editor Ports, if used, are permanently assigned for use by each suite (**Eng Setup**, **Ports & Devices**, **Editor Ports**).
- Relay Tally (**Eng Setup**, **Relay Tally**).

Note Each suite has its own, logical set of outputs that are identically numbered. Use the **Suite 1** and **Suite 2** buttons to assign them to a suite.

Figure 140. PGM Output Assigned to Suite 2



Divide Resources Between Suites

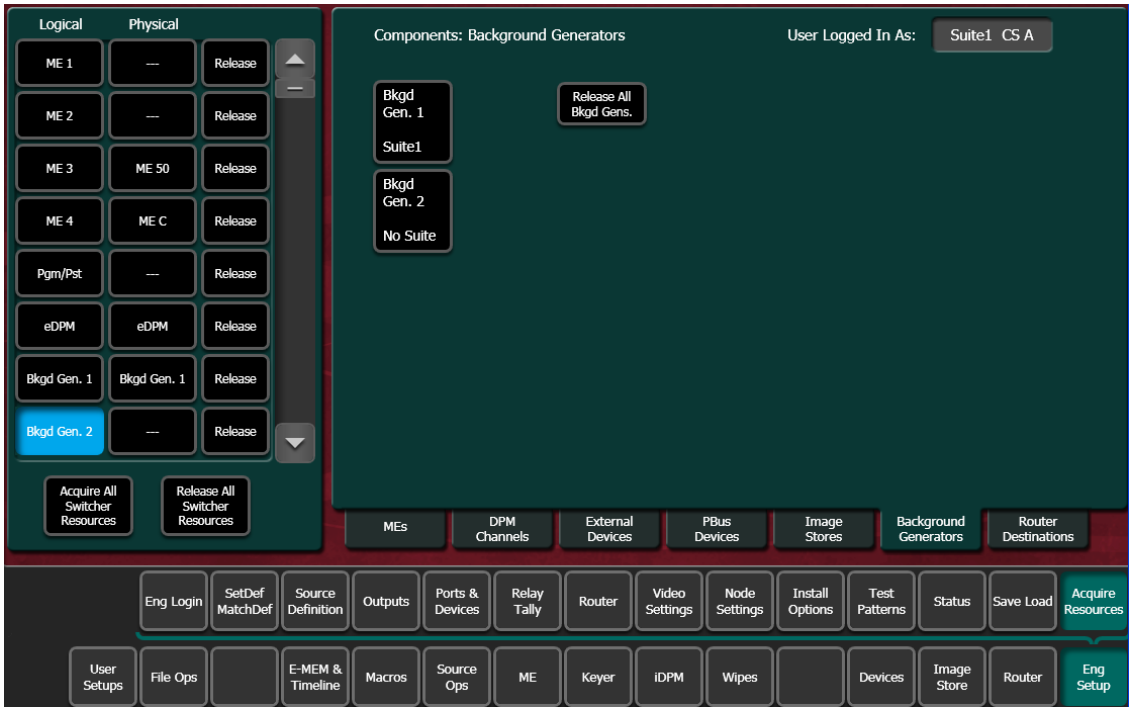
Note Changes to Suites and Resource Sharing can have serious Kayenne system operation impacts that may not be completely obvious. For this reason, precautionary messages requiring a response are posted.

1. If necessary, go to **Eng Setup**, **Eng Login**, answer **Yes** to the warning message, and login as **Suite 1 CS A** using the **Change Identity** button (Figure 141).

Figure 141. Eng Login Menu

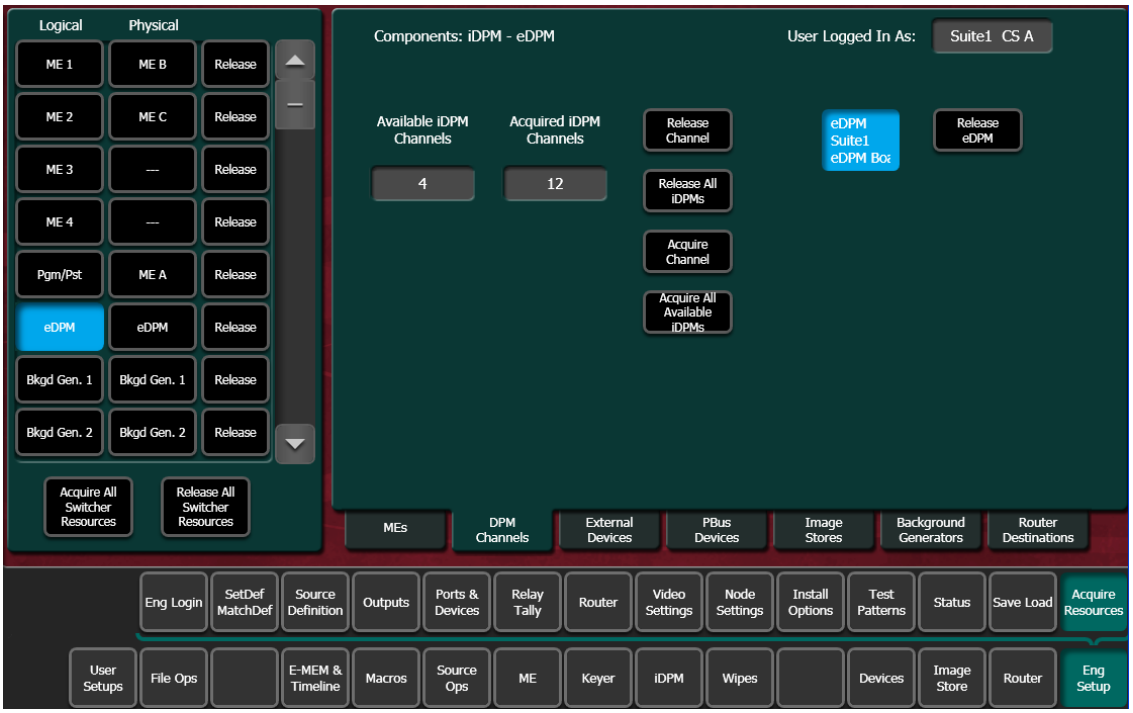
2. Touch **Eng Setup**, **Acquire Resources**, select **Yes** to the warning message, and release resources not needed in suite 1 that you wish to make available to suite 2. This can be done individually using the scrolling list on the left (Figure 142) for each type of resource. Alternatively, you can use the category tabs on the right to release all the resources in each category, and then reacquire only what is needed by suite 1.

Figure 142. Acquire Resources Menu, Suite 1



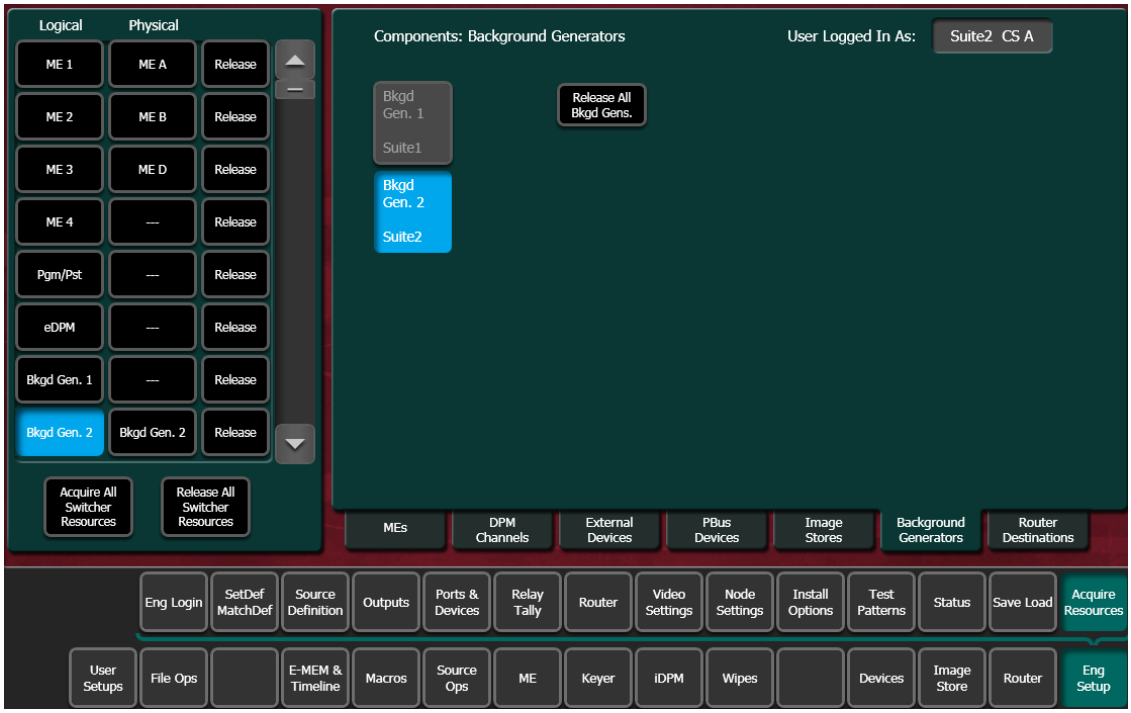
3. On the DPM Channels Menu, you can release and/or acquire the iDPM channels required for each suite, using the labeled buttons in the middle of the screen (Figure 143). The eDPM is release and acquired with the same method used for MEs.

Figure 143. DPM Channels Menu



4. Go to **Eng Setup**, **Eng Login**, and use the **Change Identity** button to login as **Suite 2 CS A**. Then touch **Eng Setup**, **Acquire Resources** and acquire the resources needed in suite 2 that have been freed in suite 1 (Figure 144).

Figure 144. Acquire Resources Menu, Suite 2



Save Default Multi-Suite Engineering Setups File

Save this Eng Setup configuration to disk, naming the file to identify it as the default multi- suite engineering configuration for the facility.

Define and Save Default Suite Prefs

Define default Suite Preferences as appropriate for suite 1 and suite 2. This is accomplished by logging in to each suite individually, accessing the various configuration menus, setting the available parameters, and then saving a Suite Prefs file for each suite while logged into that suite.

Define and Save Default Panel Prefs

Similar to Suite Prefs above, Panel Prefs files can be created and saved for each control surface, if you wish. For engineering troubleshooting purposes, you may be able to define and save a single Panel Prefs file for use on any control surface.

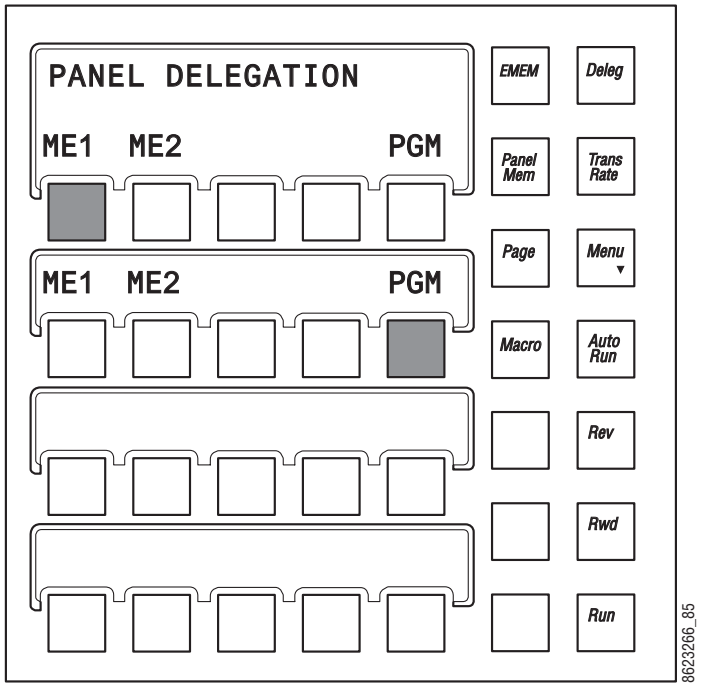
To use different Panel Prefs for different control surfaces, create and save each Panel Prefs file while logged into that suite and control surface. This is necessary for button mappings on each suite's control panel.

Delegate Stripes to MEs In Each Suite

You can now delegate the Control Panel Stripes to control the desired MEs in each suite using the standard procedure:

1. On the Local EMEM Module on a suite's control surface, touch the **Deleg** button.
2. Assign the available ME to the desired Stripe using the labeled buttons.

Figure 145. Delegating Suite Stripes to MEs



Multi Suite Independent Operation

Once configured with two suites, operators can work on each control surface completely independently from one another. Coordination will be required, however, to ensure the resources each operator needs are shared as necessary.

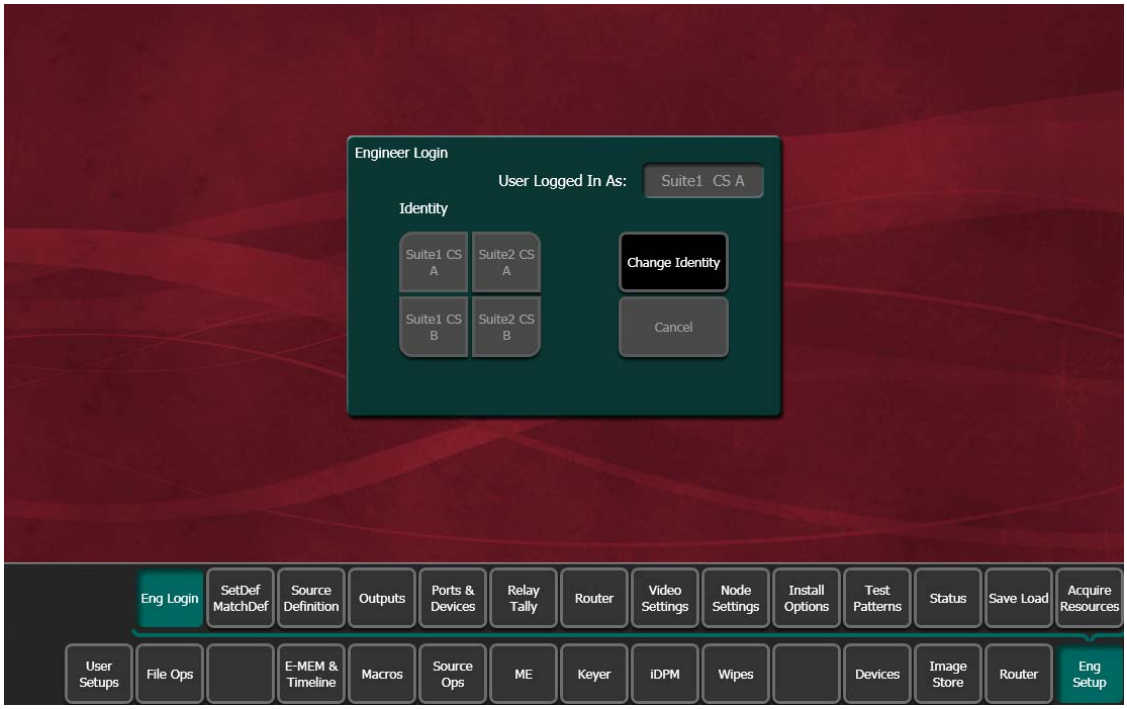
Operators should also test any EMEMs, RMEMs, or other items created or saved previously to be sure they work properly with their currently acquired resources.

Eng Setup Menu Summaries

Brief descriptions of the various Engineering Setup menus are presented here for reference.

Eng Login Menu

Figure 146. Eng Login Menu



A Kayenne system can be configured as two suites, with each suite having up to two control surfaces. The Eng Login menu is used to choose which suite and control surface the Kayenne Menu will interact with and control.

To access a different Suite or Control Surface (CS), go to the **Eng Setup**, **Eng Login** menu and touch the **Change Identity** button (Figure 146). The **Suite** and **CS** buttons will then be available for selection. After selecting a different button, a warning message appears. Select **Yes** to make the change, or **No** to cancel the change and retain the existing Menu identity.

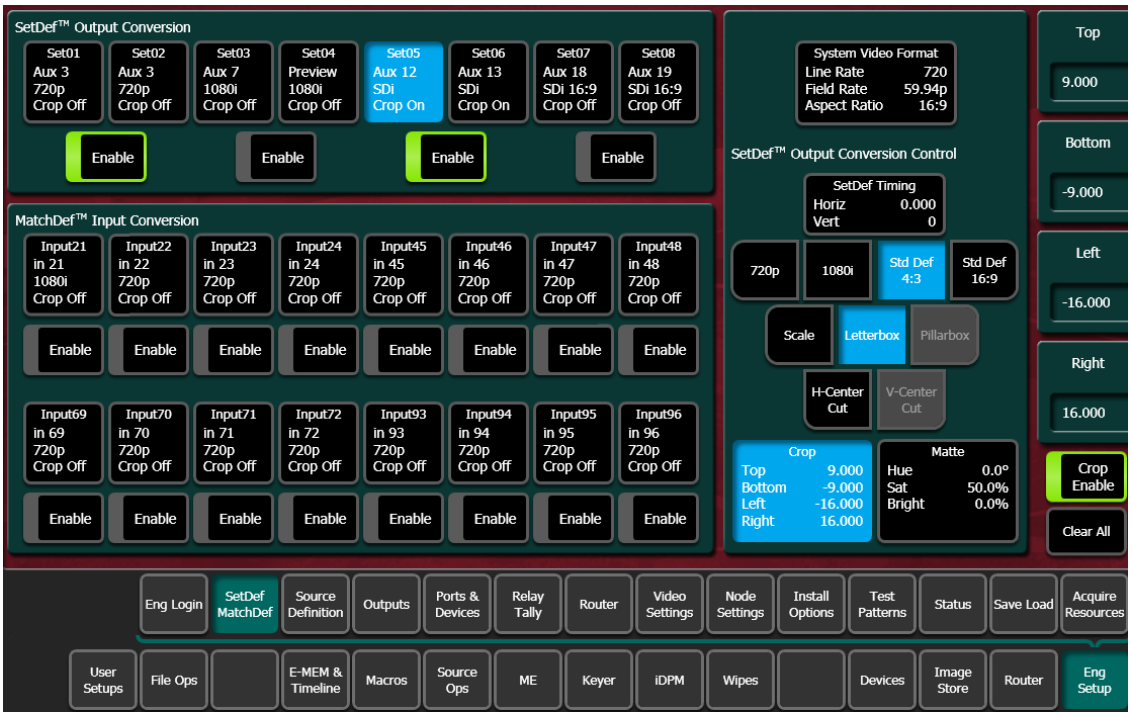
Note Changing a Menu's identity in this way is temporary. Reloading the Menu application or rebooting the Menu Panel will restore the Suite and Control Surface identity defined in the Node Settings, Control Surfaces Menu.

Kayenne system resources can be allocated to each suite. By default all Kayenne system resources are allocated to suite 1. See *Multiple Suite Resource Sharing* *on page 183* for more information.

Note Changing a Menu's identity in this way is temporary. Reloading the Menu application or rebooting the Menu Panel will restore the Suite and Control Surface identity defined in the Node Settings Control Surfaces Menu.

SetDef MatchDef Menu

Figure 147. SetDef MatchDef Menu, SetDef Selected



The SetDef and MatchDef options permit line rate signal format conversion of selected Kayenne system outputs and inputs. SetDef output and MatchDef input conversion is licensed in connector pairs. Connectors are active when the associated Video Processor Frame ME board is present and the license is enabled. Selecting an output or input button automatically brings up controls for that conversion.

Note The SetDef MatchDef menu is also accessible to operator via **Source Ops**, **SetDef MatchDef**. When inputs or outputs have been activated from the Eng Setup, these items are grayed out in the Source Ops Menu.

SetDef Output Conversion

Each of the eight SetDef buttons report the current source, format, and crop status for that output.

The four **Enable** buttons activate and deactivate conversion for the pairs of output connector buttons immediately above.

The currently operating Kayenne video standard is shown in the **System Video Format** status display on the upper right portion of the menu.

The **SetDef Timing** button, when selected, displays Horizontal and Vertical Offset data pads, allowing changes to the timing of that output relative the the Kayenne system video reference.

The conversion format for the selected output is chosen from the labeled buttons in the right pane (**720p**, **1080i**, **Std Def 4:3**, **Std Def 16:9**). This format is applied to both output pairs.

Controls for Scale, Letterbox, Pillarbox, H-Center Cut and V-Center Cut are displayed, depending on the format selected.

Scale - Scales the image to fill the full raster of the screen. If mismatched formats are involved, the image may distort and appear wider or narrower that its original state.

Letterbox - Used to convert 16:9 to 4:3 by adding bars above and below the image.

Pillarbox - Used to convert 4:3 to 16:9 by adding bars to the left and right sides of the image.

H-Center Cut - Fills the screen with the center portion of the image, cutting off some of the left and right sides.

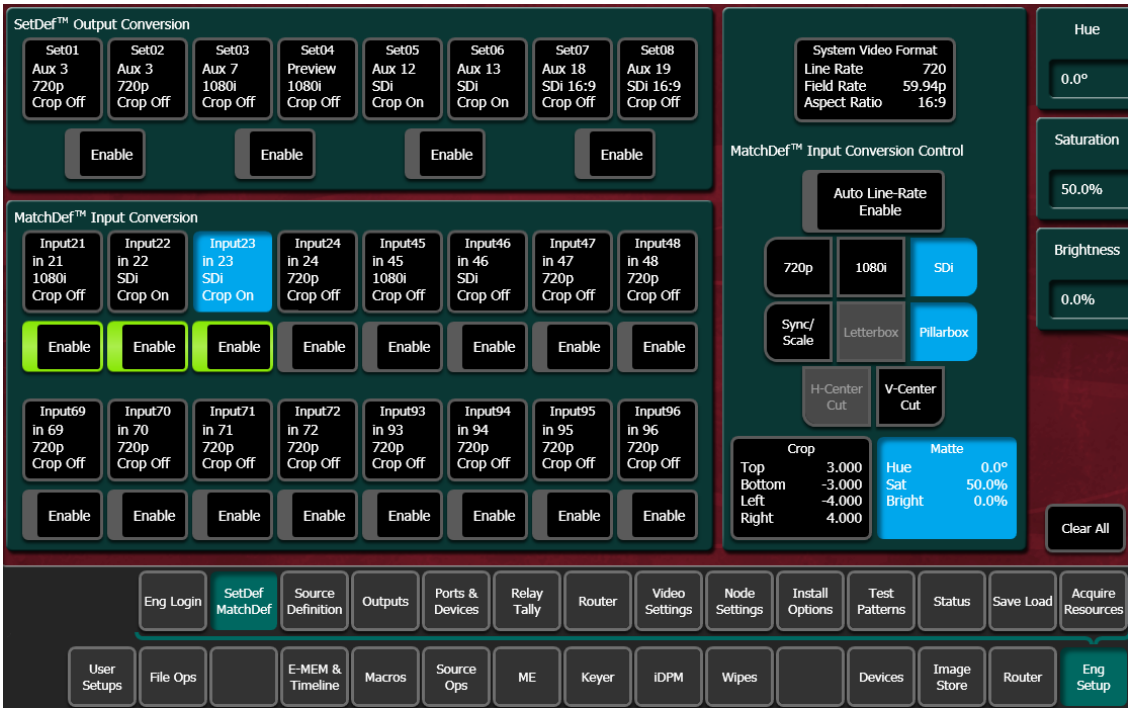
V-Center Cut - Fills the screen with the center portion of the image, cutting off some of the top and bottom.

The **Crop** button, when selected, displays Top, Bottom, Left, and Right crop data pads. Crop values can be entered and activated by touching the **Crop Enable** button.

When Crop, Letterbox, or Pillarbox is active, the **Matte** button can be selected, which displays Hue, Saturation, and Brightness data pads. The color values entered are applied to the non-image portion of the raster.

MatchDef Input Conversion

Figure 148. SetDef MatchDef Menu, MatchDef Selected



Each of the 16 Match Def buttons report the current source, format, and crop status for that input.

The **Enable** buttons activate and deactivate conversion for the individual input connector button located immediately above.

The currently operating Kayenne video standard is shown in the **System Video Format** status display on the upper right portion of the menu.

Auto Line-Rate Enable – When on, the Kayenne system detects the input video format and automatically chooses the appropriate line rate for the selected input. One frame of video is required for detection. If the incoming video signal format changes, one incorrect frame of video will be displayed. When Auto Line-Rate Enable is on, the 720p, 1080i, and SDi buttons below are inactive.

Note If the incoming source is has a noisy signal, choosing the correct frame rate manually may provide better performance.

When Auto-Line Rate Enable is off, the conversion format for the currently selected input can be chosen from the labeled buttons in the right pane (**720p**, **1080i**, **SDi**).

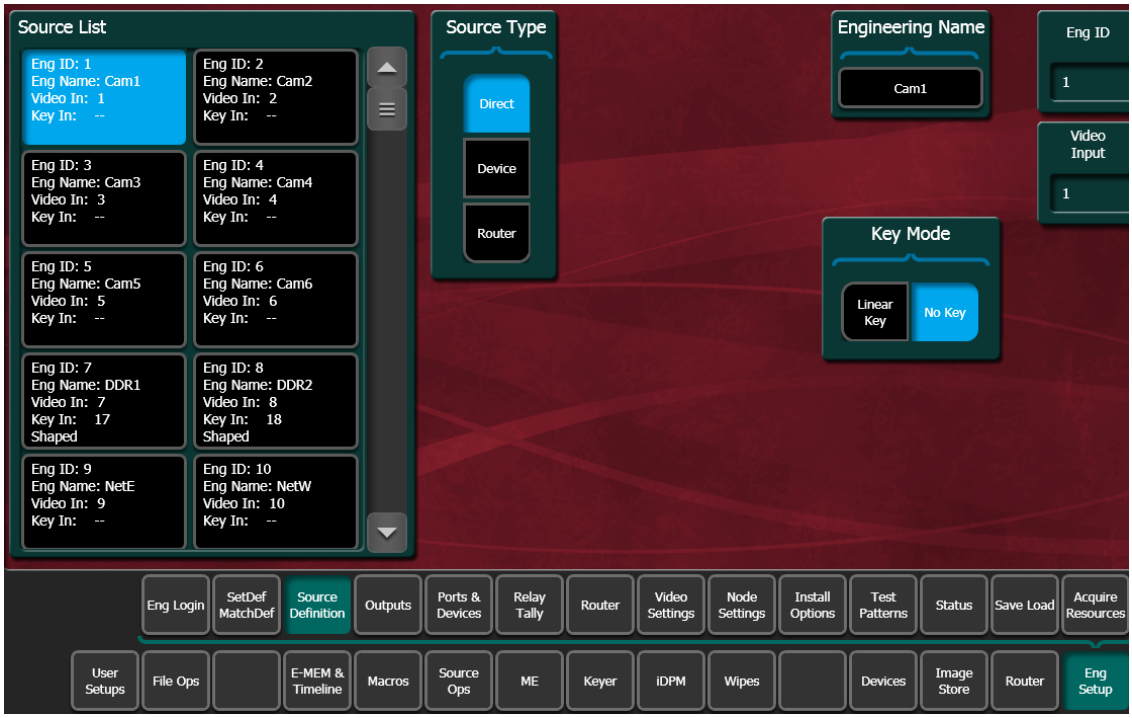
Controls for Scale/Sync, Letterbox, Pillarbox, H-Center Cut and V-Center Cut are displayed, depending on the format selected. These controls are

identical to those used for SetDef. The **Sync/Scale** button behaves the same as the SetDef **Scale** button, but also employs frame sync circuitry.

Crop and **Matte** controls are also available, which operate the same as for SetDef (see page 200).

Source Definition Menu

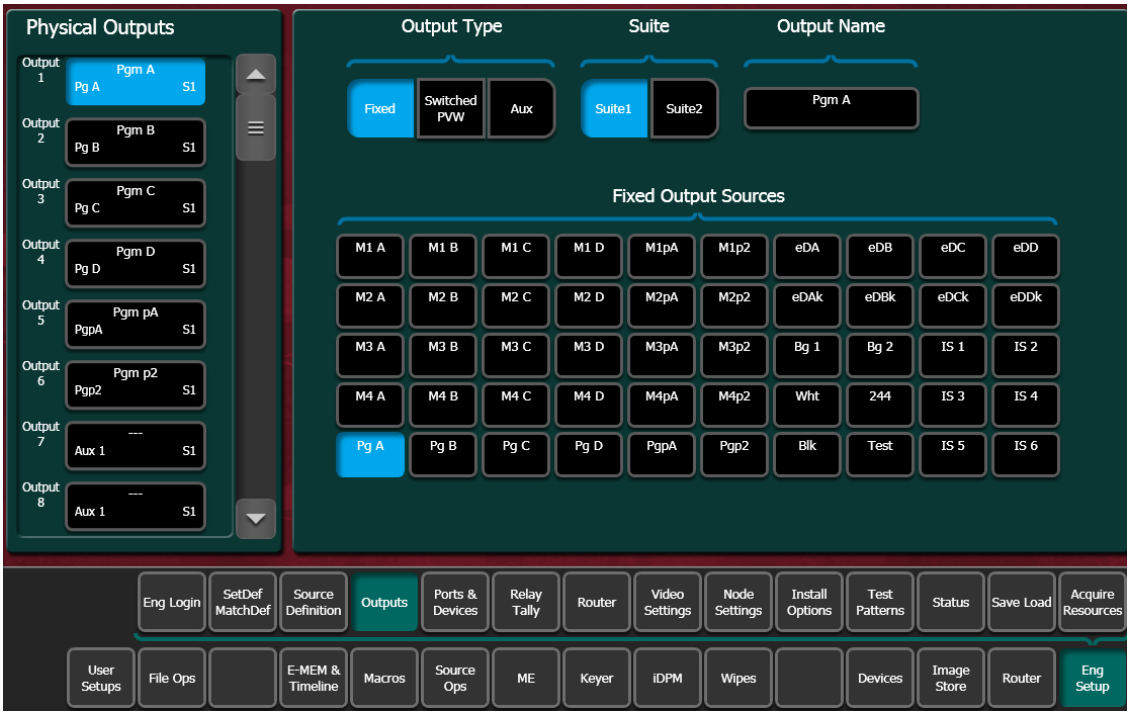
Figure 149. Source Definition Menu



The Eng Setup Source Definition menu is used to create and edit source definitions. See *Source Definition* *on page 156* for detailed information.

Outputs Menu

Figure 150. Outputs Menu

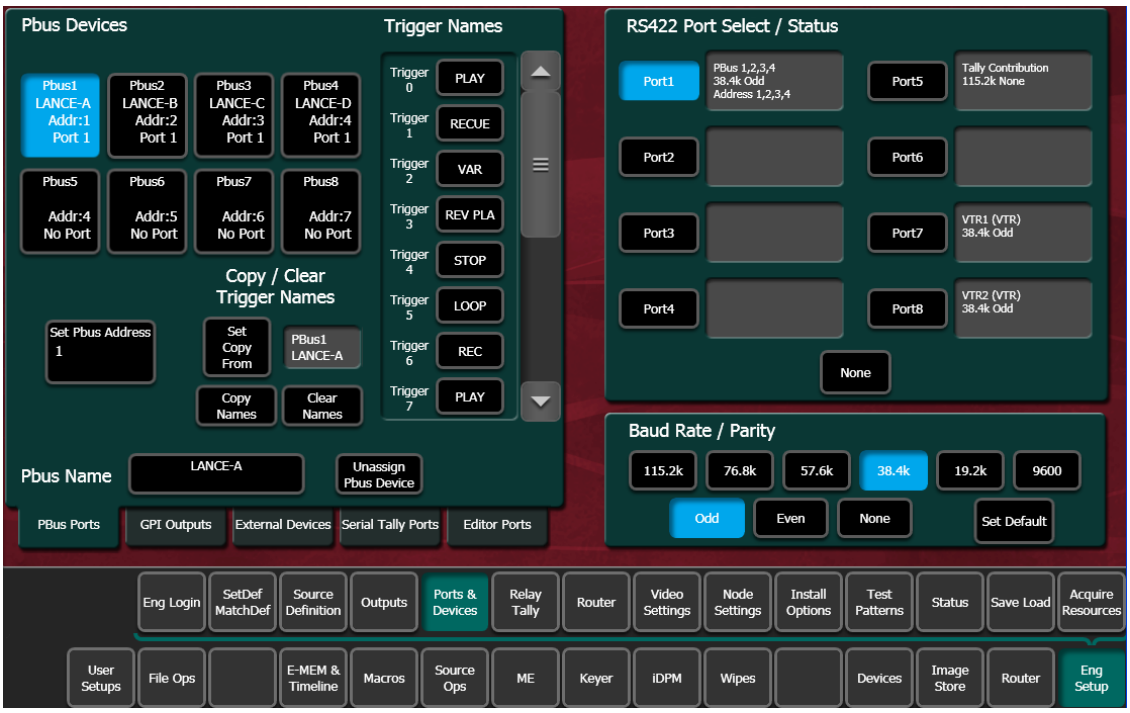


The Outputs menu is used to change the Kayenne system output assignments. See *Output Assignments* *on page 161* for detailed information.

Ports & Devices Menus

PBus Ports Menu

Figure 151. PBus Ports Menu

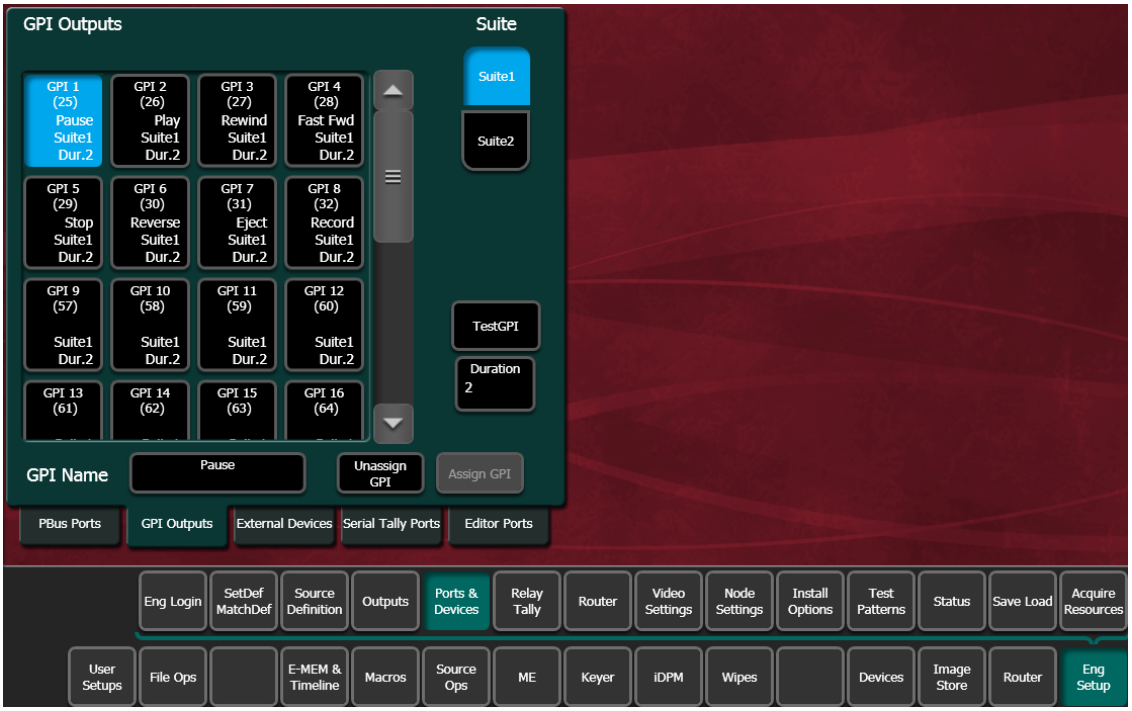


The PBus Ports Menu is used to configure serial ports for PBus control of external devices.

See *Section 7-External Interfaces* for specific information.

GPI Outputs Menu

Figure 152. GPI Outputs Menu

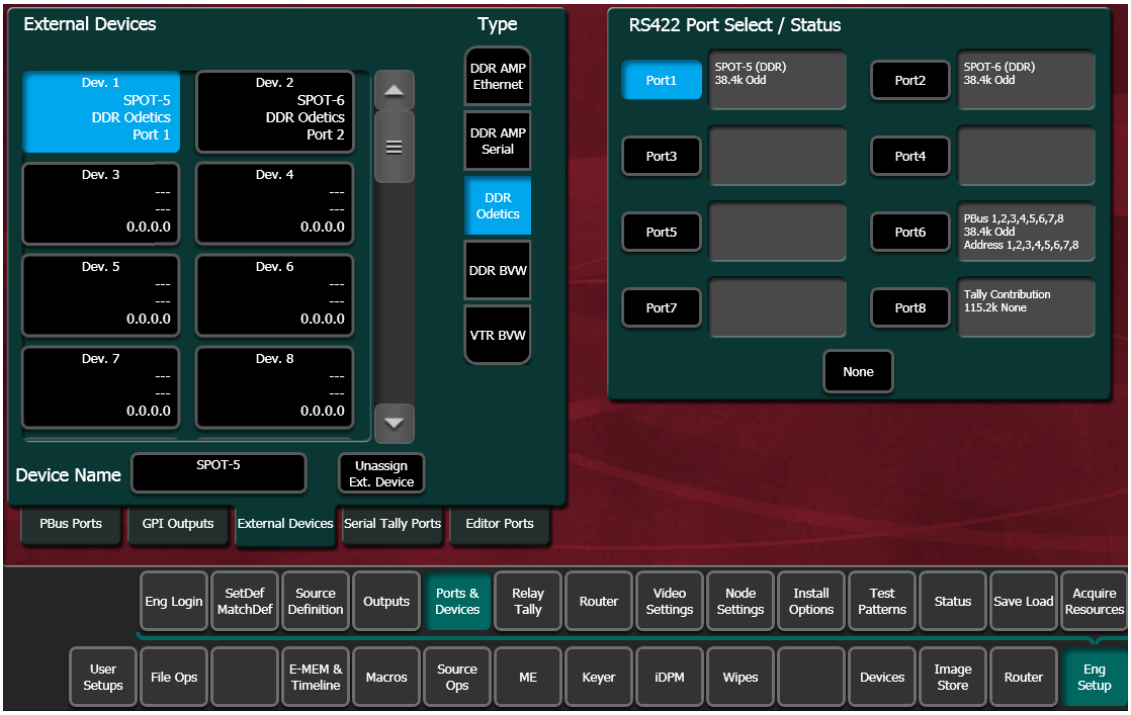


The buttons in the scrolling list represent the 32 physical GPI output relays available on the Kayenne system. The functions performed by these relays depend on how they have been connected to the device being controlled.

See *GPI Outputs Menu* *on page 231* for more information.

External Devices Menu

Figure 153. External Devices Menu



The Eng Setup External Devices menus is used to create and edit *Device Definitions*. Each Device Definition contains the settings required to use the unique features of that device. A new logical device can be created, and existing devices can be edited and unassigned via this menu.

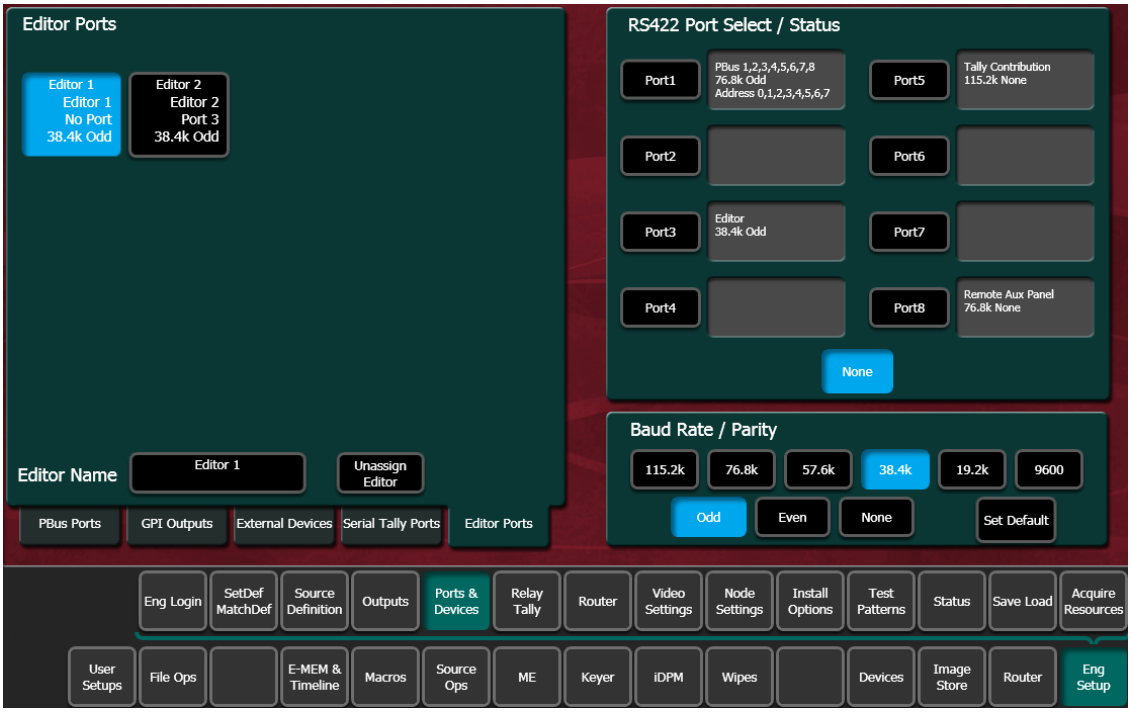
See *Section 7-External Interfaces* for specific information.

Serial Tally Ports Menu

Serial Tally information can be routed to a serial port with this menu. See the separate *Grass Valley Switcher Protocols Manual* for technical information.

Editor Ports Menu

Figure 154. Editor Ports Menu

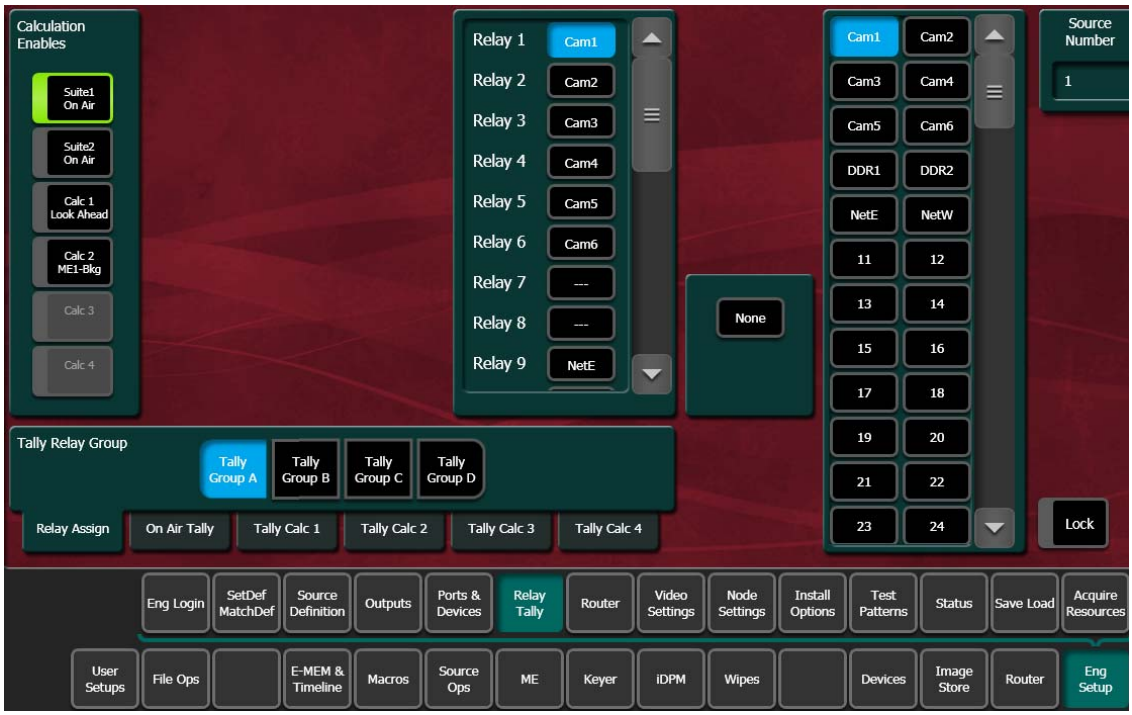


Up to two editor ports are supported and can be assigned to serial ports.

See *Editor Ports Menu on page 239* for more information.

Relay Tally Menus

Figure 155. Tally Relay Assign Menu



The Relay Tally Menus are used to configure relay connectors available on the Video Processor Frame for tally operation. Six different Relay Tally Menus exist (Relay Assign, On-Air Tally, and Tally Calc 1-4).

See *Relay Tally Configuration* *on page 165* for specific information.

Router Menu

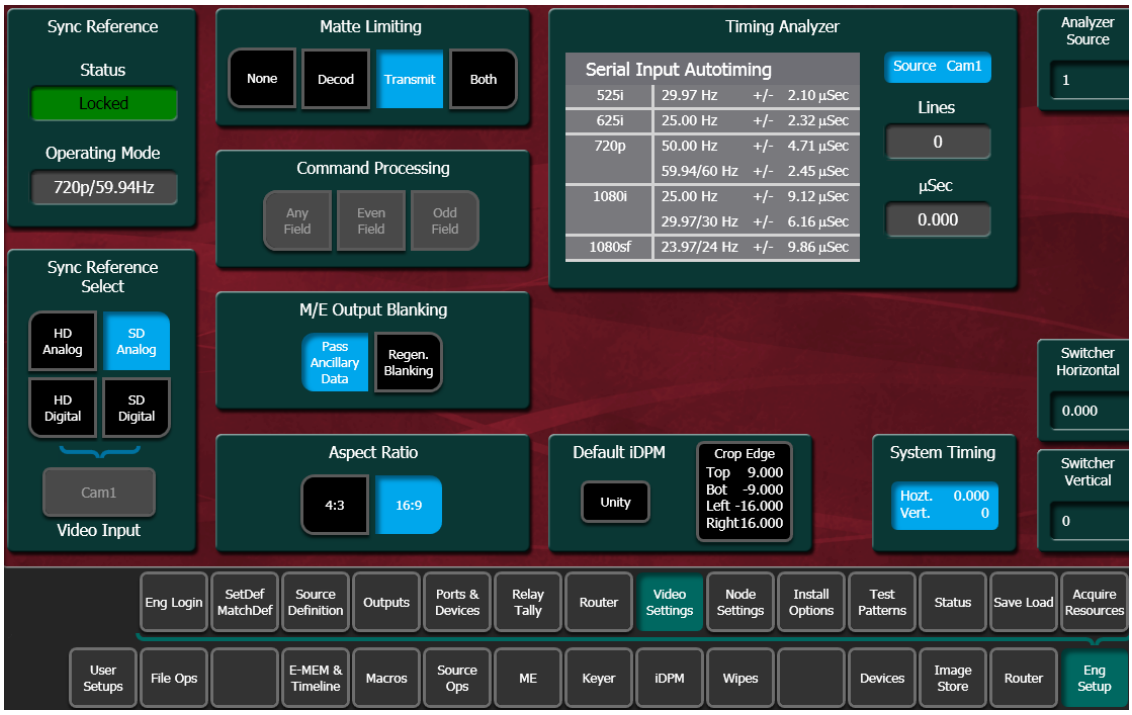
Figure 156. Router Menu

The Router Menu is used to establish communications with a facility video router, and to map router sources to external devices.

See *Section 7-External Interfaces* for specific information.

Video Settings Menu

Figure 157. Video Settings Menu



The Video Settings Menu reports the current Kayenne system sync reference and status, allows selection of HD or SD operating mode, and provides other system functions.

Sync Reference Select

Choosing **HD Analog** or **SD Analog** selects which connector the Video Processor Frame will use for system reference.

CAUTION A tri-level sync reference signal is required for proper HD system operation.

Choosing **HD Digital** or **SD Digital** allows selection of an video input source to for use as system reference. This should only be used temporarily, for troubleshooting or initial system test, because an interruption of that input signal can cause Kayenne system problems.

Matte Limiting

Matte Limiting determines how the matte generators produce colors. Limits can be imposed to prevent downstream signal problems.

None – In this mode, no limiting is imposed. Analog signal paths and monitors may behave poorly to some colors produced in this mode.

Decodable – This limiter mode produces colors that decode to valid RGB components. Not all valid RGB colors can be transmitted in NTSC, however. Saturated colors near yellow and cyan over modulate an NTSC transmitter.

Transmittable – This limiter mode prevents over modulating an NTSC transmitter, but can produce colors which can not be decoded into RGB. For example, a 0% luminance blue produces negative green and red components.

Both – This limiter mode is similar to **Decodable**, except that maximum levels are reduced slightly around yellow and cyan to prevent over modulating an NTSC transmitter.

Command Processing

These controls determine when commands (like source selections or the initiation of mixes or wipes) will be enacted by the Kayenne system (also known as field dominance). These controls can be useful for consistent match frame editing.

Any Field – The action will occur at the start of the next field, either even or odd. Use this setting if you are not going to edit the video output and want the fastest response.

Even Field – The action will always occur at the start of the next even field. This is probably only appropriate if your edit controller is set to edit in the middle of a frame.

Odd Field – The action will always occur at the start of the next odd field. This is the normal setting for almost all conditions, especially when the video output will be edited, and is compatible with most video editing systems that use the frame boundary for edits. This setting is essential, however, when controlling external devices like DDRs that execute commands only at the beginning of the frame.

ME Output Blanking

Production switchers normally regenerate a clean blanking interval. When the switcher must pass ancillary information such as embedded audio, this blanking regeneration can be disabled. This following settings apply to the output blanking of all the MEs.

Pass Bus A's Ancillary Data – Passes the ancillary data from the A bus to the ME Program output during the vertical interval.

Regenerate Blanking – Regenerates blanking during the vertical and horizontal intervals.

Default iDPM Crop

Default crops are intended to define the extent of a standard image for a facility. The Default iDPM Crop controls adjust cropping when individual iDPM channel crop is turned off. Individual iDPM cropping is used to adjust for variations in individual sources.

SMPTE RP-187 establishes recommended practices for standard image sizes (production aperture, clean aperture). If a facility conforms to these practices, the Kayenne system default values will be correct and no adjustment should be necessary. Changing the default crops is not recommended, unless absolutely necessary.

Unfortunately, not all video images have the transition to blanking (black) in exactly the same place. Normally, these blanking variations are hidden at the extreme edges of the picture and are not visible. If an image smaller than expected is transformed, however, black lines can occur at its edges, which are now visible because they have moved inside the visible picture area. If it is necessary to compensate for variations in your facility's nominal blanking, adjust the default crops so they just remove black edges on the facility's normal image.

The 4:3 and 16:9 aspect ratios have different default crops.

Crop Edge – Allows setting alternative cropping for iDPM processing.

Unity – Resets iDPM cropping to factory default.

Timing Analyzer

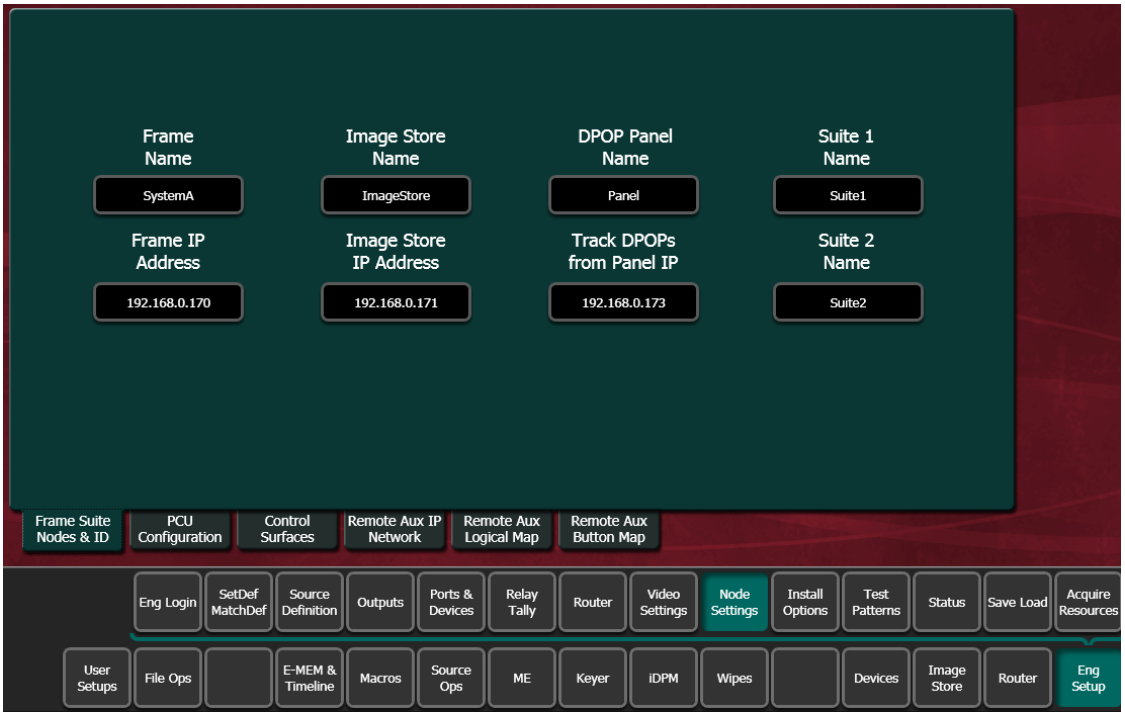
The Video Settings Menu also has a timing analyzer and system timing adjustments. See *Timing Analyzer* *on page 120* for more information.

Node Settings Menus

The Node Settings Menus are used to establish communications among various Kayenne system components. These important settings are not included in Eng Setup configuration files, to prevent accidental system communication failures if Eng Setup files are loaded incorrectly.

Frame Suite Nodes & ID Menu

Figure 158. Frame Suite Nodes & ID Menu



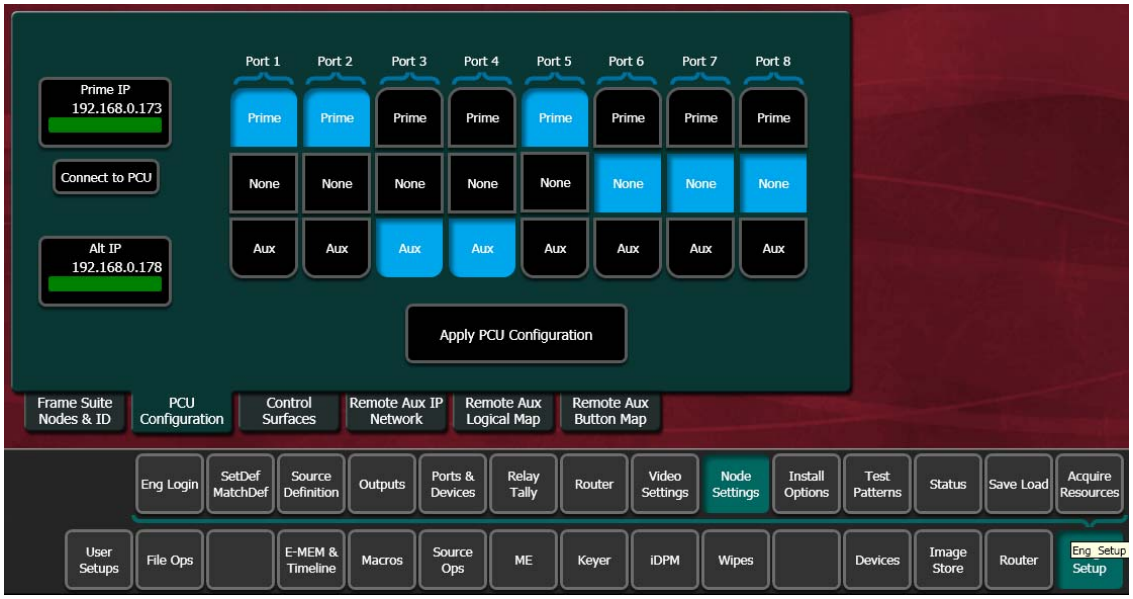
The Frame Suite Nodes & ID Menu has fields to enter the IP addresses the Kayenne Menu application will use to communicate with the Video Processor Frame, Image Store, and the Control Panel whose DPOPs will affect this application's menu displays. A Menu restart is required to make IP address changes take effect.

When connected, the currently defined names of these devices are displayed. These names can be edited from this menu, and will be sent to the device as soon as the new name has been entered. Subsequent connections to this device from this or another menu will show that edited name.

Note Do not change device or suite names unnecessarily, as this could cause confusion to other Kayenne system users.

PCU Configuration Menu

Figure 159. Control Surfaces Menu



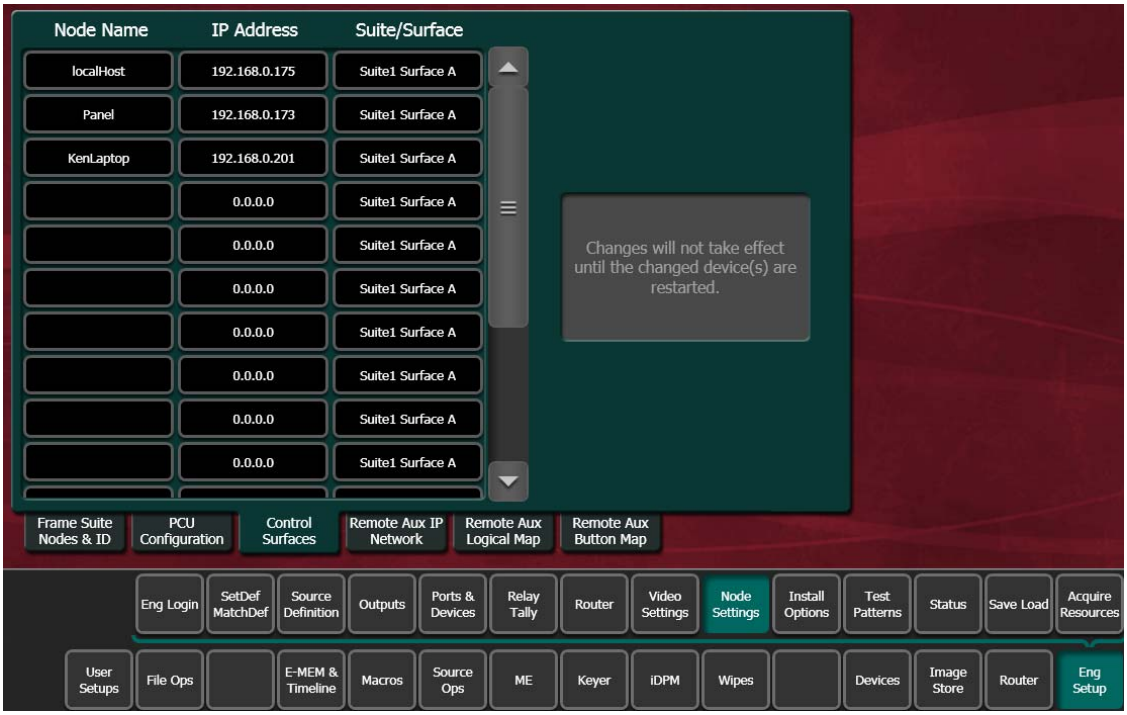
The PCU Configuration Menu is used to divide a single PCU's multi-pin ports for use by two independent Kayenne Control Panels.

Kayenne systems with one Control Panel, or multiple Control Panels operating corroboratively, will not need to change settings on this menu.

See *Multiple Suite Resource Sharing on page 183* for more information.

Control Surfaces Menu

Figure 160. Control Surfaces Menu

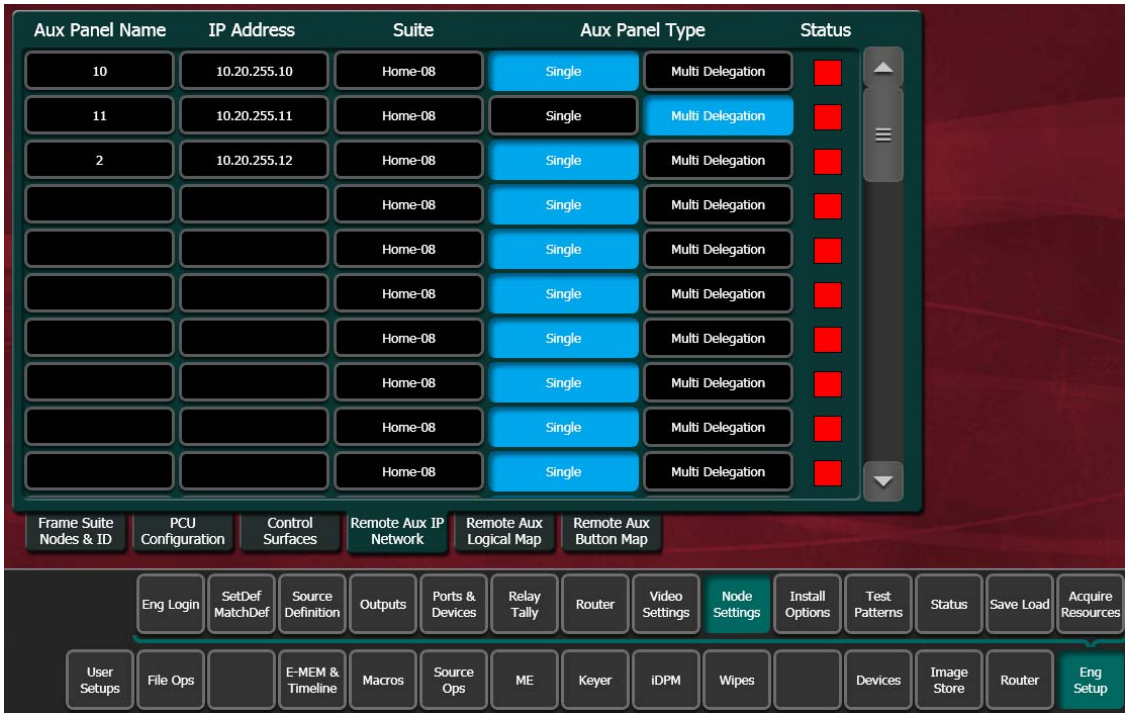


The Control Surfaces Menu is used to register Kayenne Control Panels and Menu Panel applications for communication with the Kayenne Video Processor Frame. The suite and control surface the device is associated with can also be assigned. The devices involved will need to be restarted to make any changes take effect.

See *Establishing Menu to Frame Communication on page 137* and *Multiple Suite Resource Sharing on page 183* for more information.

Remote Aux IP Network Menu

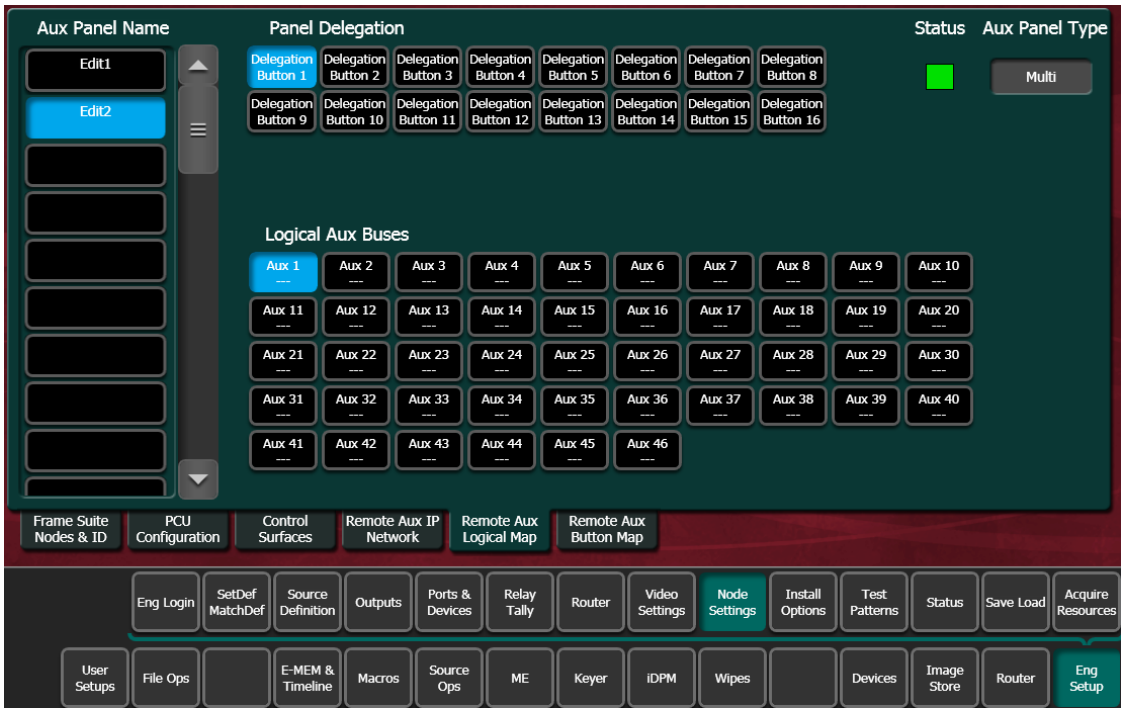
Figure 161. Remote Aux IP Network Menu



The Remote Aux IP Network Menu is used to register Remote Aux Panels for communication with the Kayenne Video Processor Frame, and identify their type and suite assignment. See *Remote Aux Panel Registration* *on page 154* for more information).

Remote Aux Logical Map Menu

Figure 162. Remote Aux Logical Map Menu



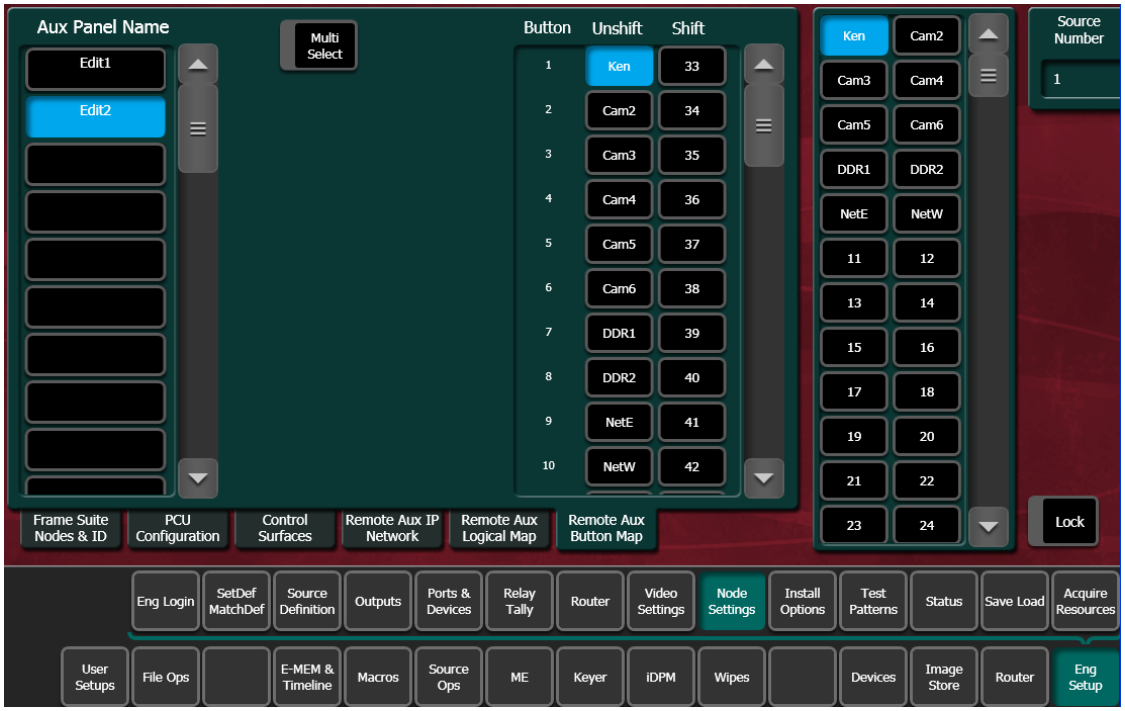
The Remote Aux Logical Map Menu is used to assign Aux Buses for control by that Remote Aux Panel. Single Aux Panels can control one Aux Bus, while Multi-Delegation panels can have several Aux Buses be assigned to delegation buttons on that panel.

To Assign Aux Buses on a Multi-Destination Panel

1. Highlight a Panel Delegation button at the top of the screen.
2. Touch one of the Logical Aux Buses buttons on the lower screen. That Aux Bus will then be selected when that Remote Aux Delegation button is pressed on that panel.

Remote Aux Button Map Menu

Figure 163. Remote Aux Button Map Menu



The Remote Aux Button Map Menu is used to configure sources to the Remote Aux Panel source select buttons.

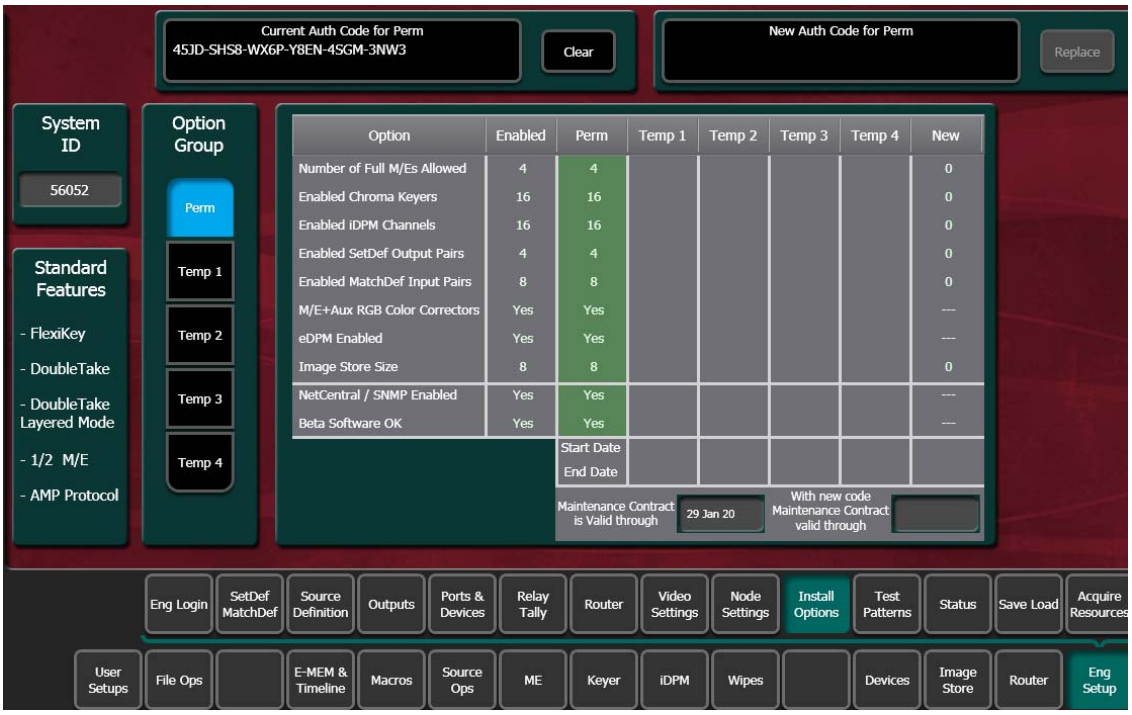
To Map Remote Aux Panel Buttons

1. Highlight a source select button in the central scrolling list.
2. Touch a source button on the scrolling list on the right. It will be assigned to that Remote Aux Panel button.

- The **Source Number** data pad and scroll knob on the upper right can be used to quickly select a Kayenne source by its logical ID number
- The **Lock** button at the bottom prevents the source list from scrolling when choosing different Remote Aux buttons.

Install Options Menu

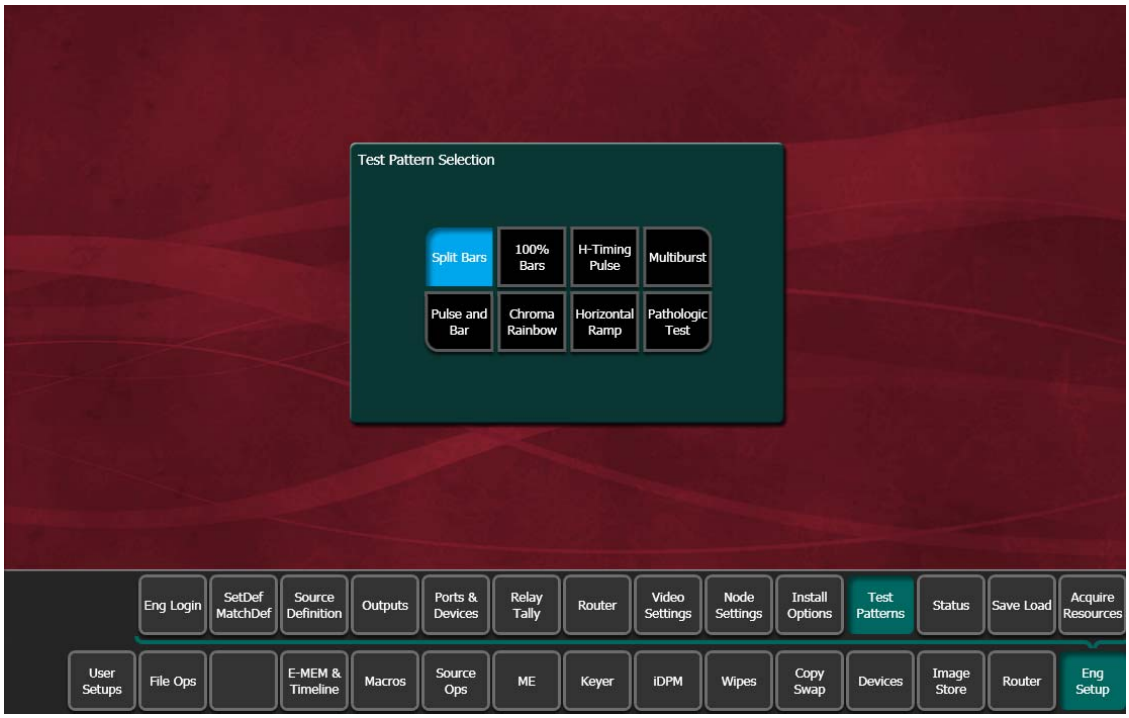
Figure 164. Install Options Menu



The Install Options Menu is used to authorize software enabled options. See *Section 8-Maintenance* for specific information.

Test Patterns Menu

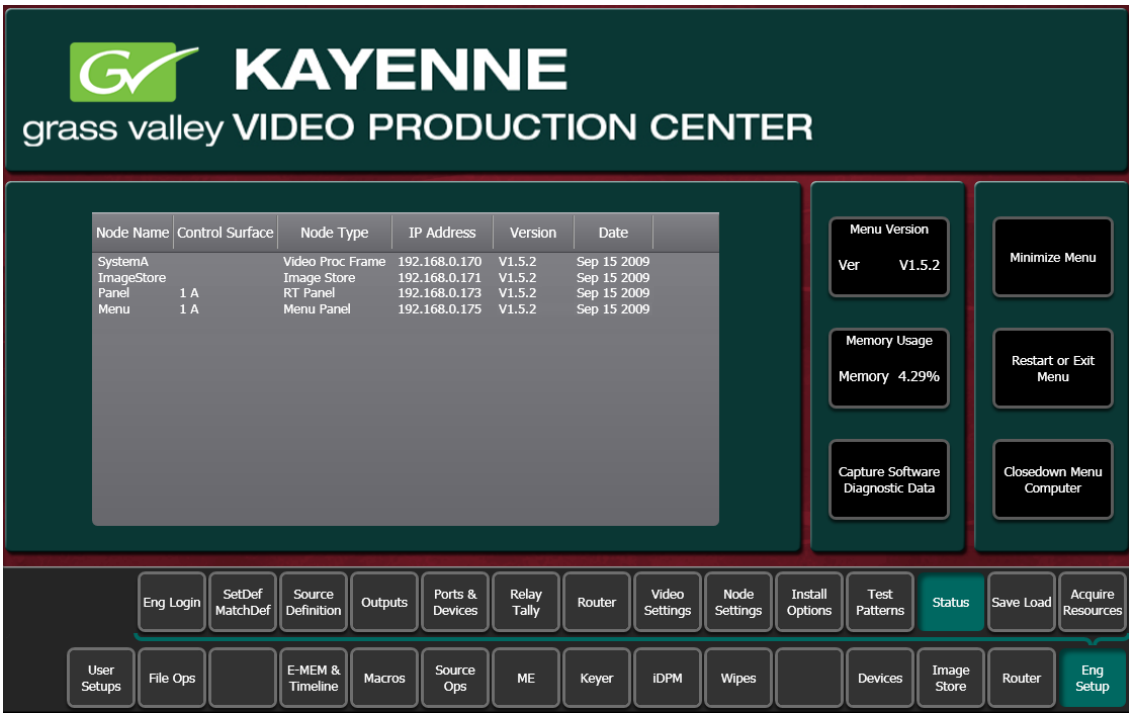
Figure 165. Test Patterns Menu



The Test Patterns menu allows the selection of different video test patterns. The chosen test pattern will be displayed when the Test source is selected.

Status Menu

Figure 166. Status Menu



The Status Menu reports the currently connected Kayenne devices by their name, control surface, type, IP address, software version, and date in the central window.

Note The Control Surface of a Menu Panel indicated on this menu is defined by the Node Settings, Control Surfaces Menu settings. It does NOT report the Control Surface that Menu Panel is currently logged in as.

Menu Version – Reports the version of the Kayenne Menu application.

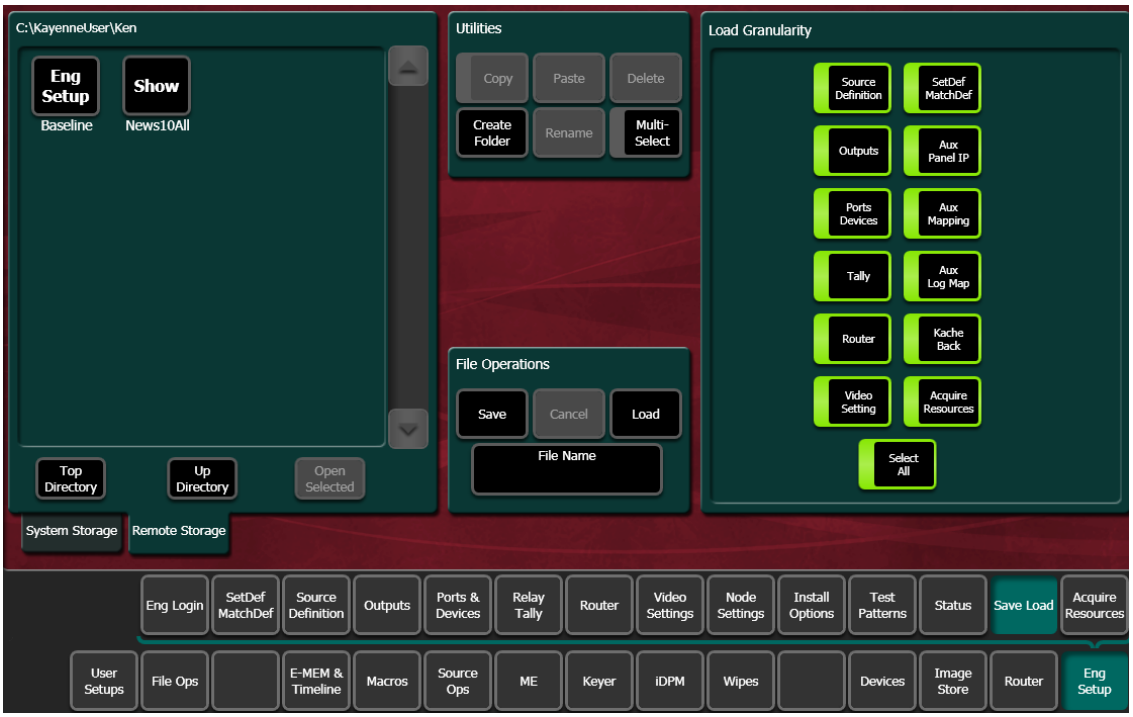
Memory Usage – Reports the amount E-MEM and other keyframe memory currently in use. If usage reaches 100%, no new keyframes will be able to be added to any effect. Deleting keyframes from any effect will regain space.

Capture Software Diagnostic Data – This button provides a convenient method to save the current configuration files, E-MEM, Macro, and also any frame software diagnostics data files that may exist (see Diagnostic Data Collection below). If you need to contact Grass Valley for assistance about any software problems, the engineering team will want these files for efficient troubleshooting. See *Section 8-Maintenance* for more information.

The **Minimize Menu** button minimizes the Menu application, revealing the Windows desktop. The **Exit Menu** and **Closedown Menu Computer** buttons perform those functions.

Save Load Menu (Eng Setup)

Figure 167. Save Load Menu (Eng Setup)



Eng Setup files can be saved and loaded with this menu. See *Eng Setup File Operations* *on page 179* for more information.

Acquire Resources Menus

The Acquire Resources Menus are used to acquire and release Kayenne system resources when multiple suites are being used. Different Menus are used for different resource types.

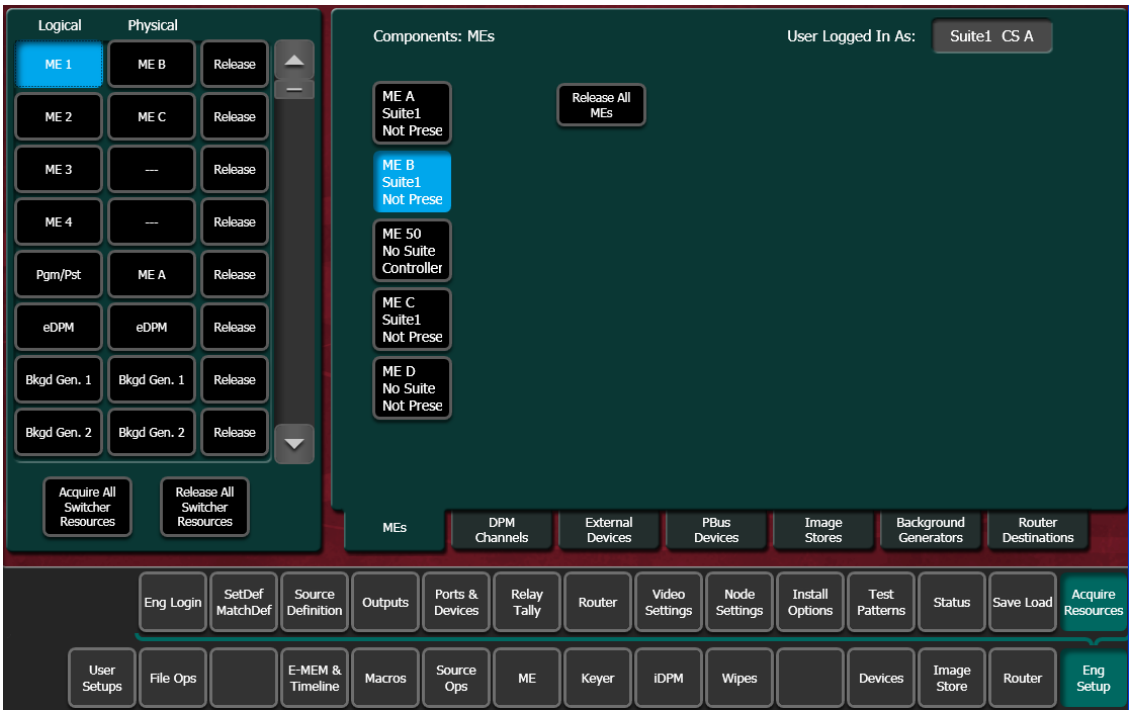
General Procedure to Acquire Resources

1. Login to the suite.
2. Select the button of the Logical Device you wish to acquire a resource for. These are the left most buttons on the scrolling list on the left. The menu will automatically display the menu for that resource type on the right.
3. Touch the button of the physical resource you wish to acquire on the right side of the screen.

If no resources are available, you may need to Login to the other suite, release the resource(s) you need, then return to the original suite and acquire them.

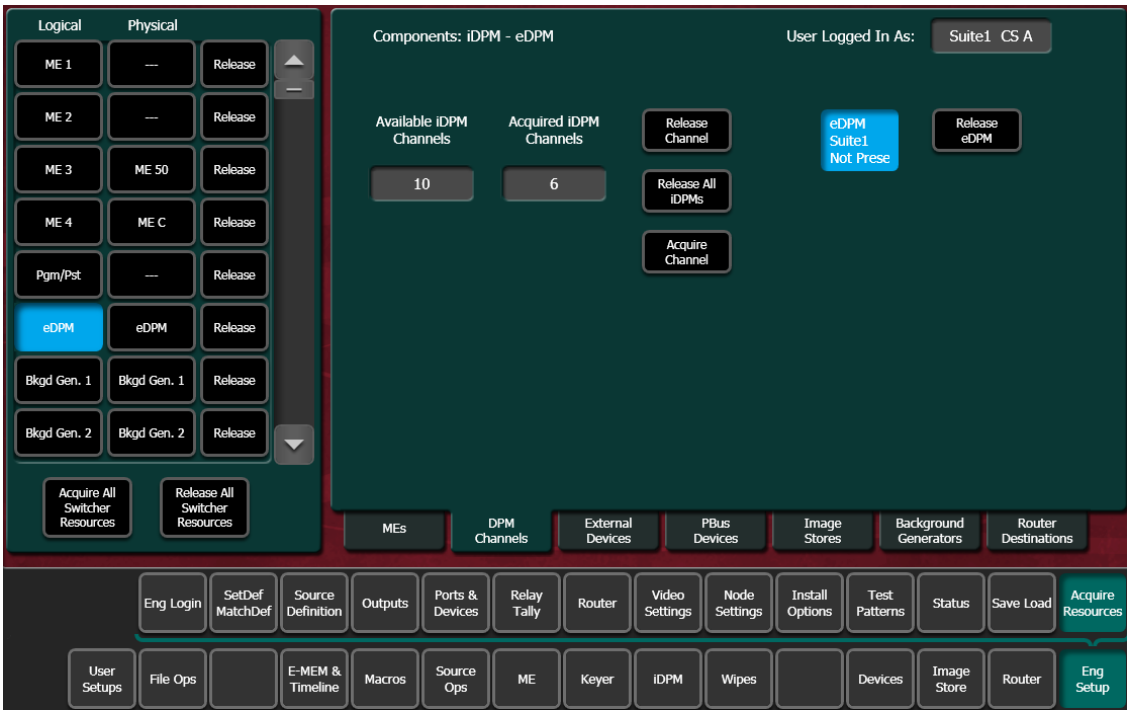
MEs Menu

Figure 168. MEs Acquire Menu)



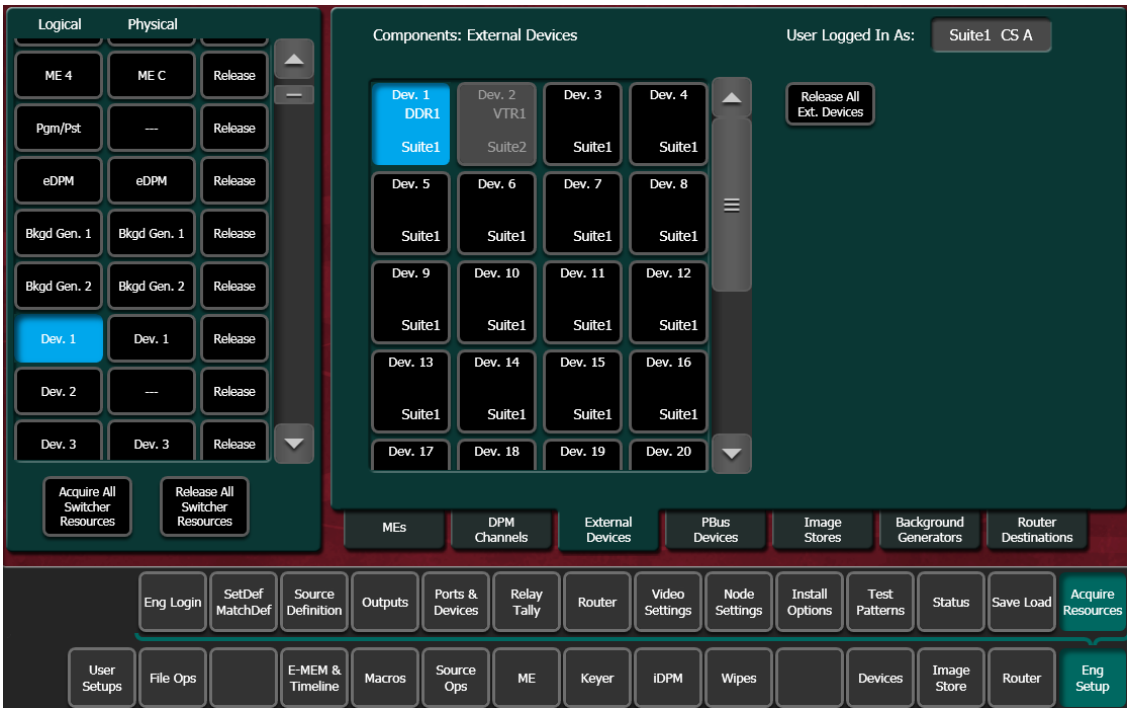
DPM Channels Menu

Figure 169. DPM Channels Acquire Menu



External Devices Menu

Figure 170. External Devices Acquire Menu



PBus Devices Menu

Figure 171. PBus Devices Acquire Menu

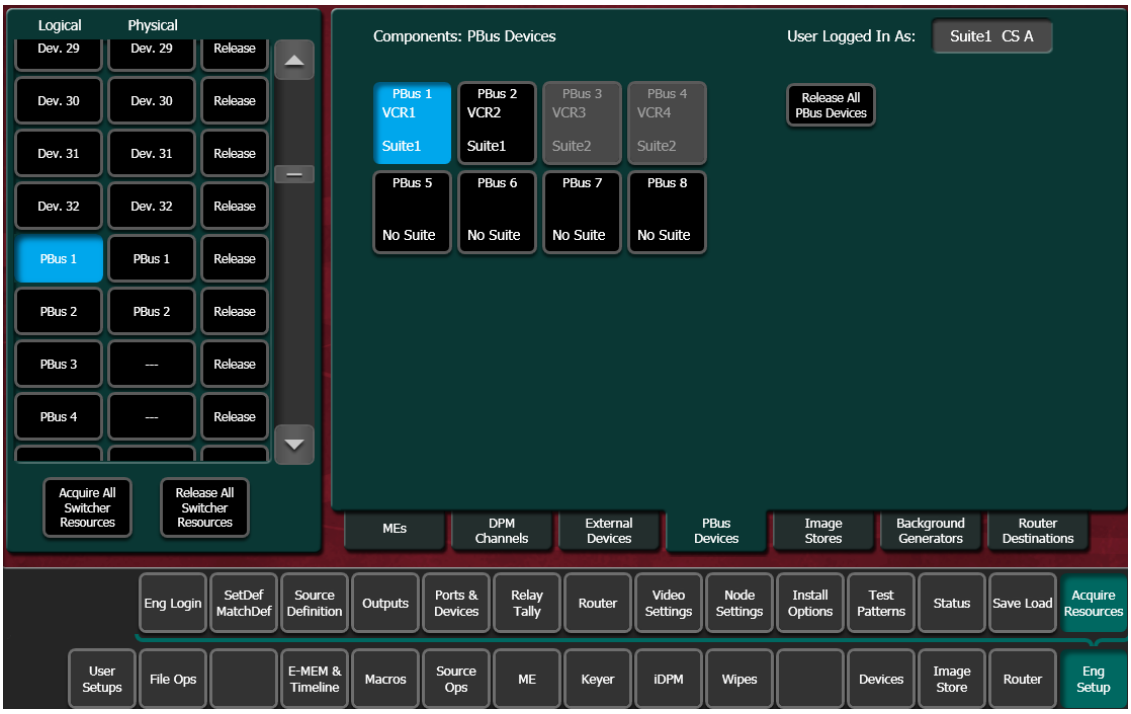
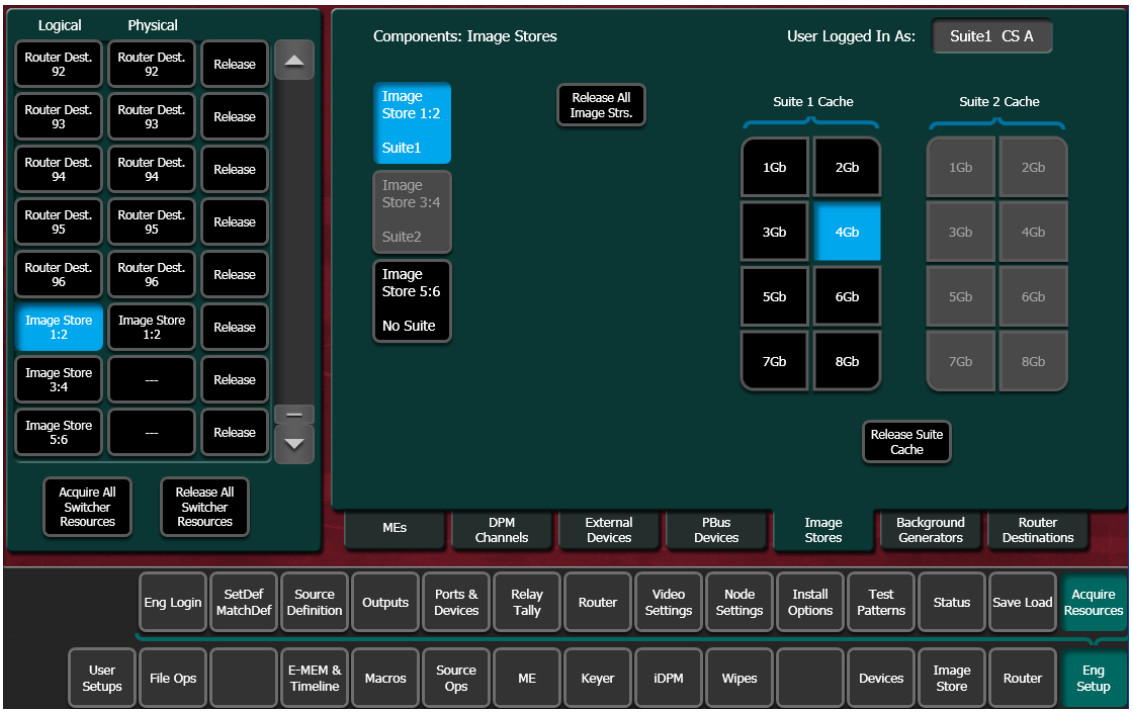


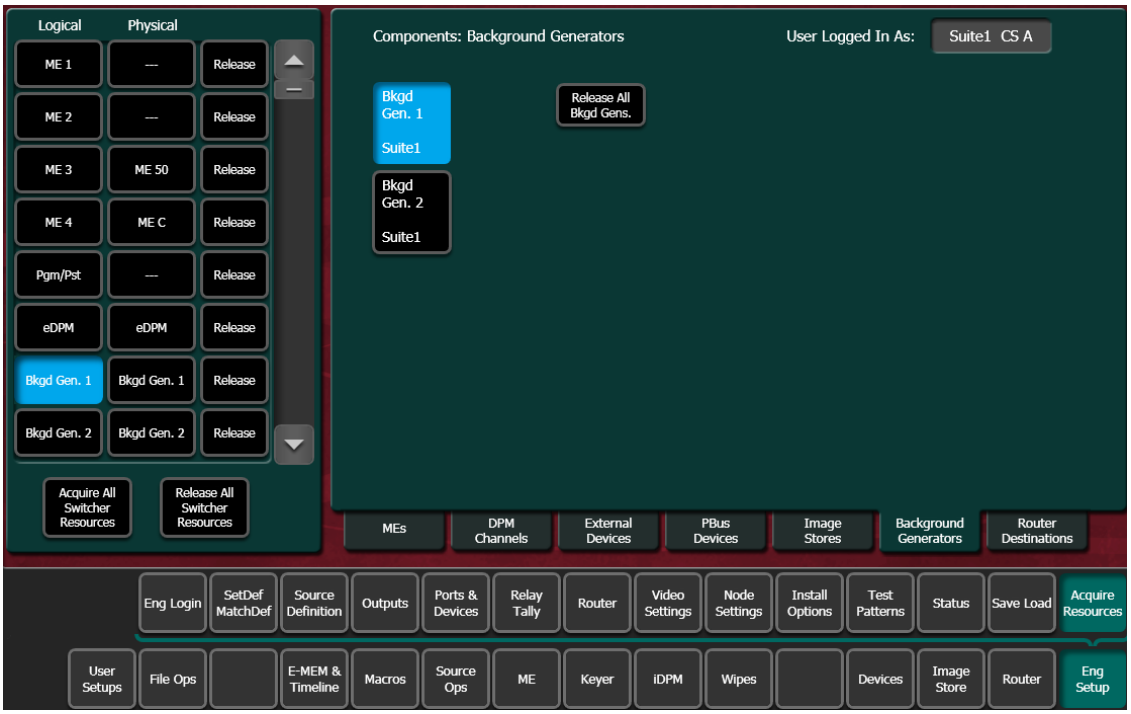
Image Store Menu

Figure 172. Image Store Acquire Menu



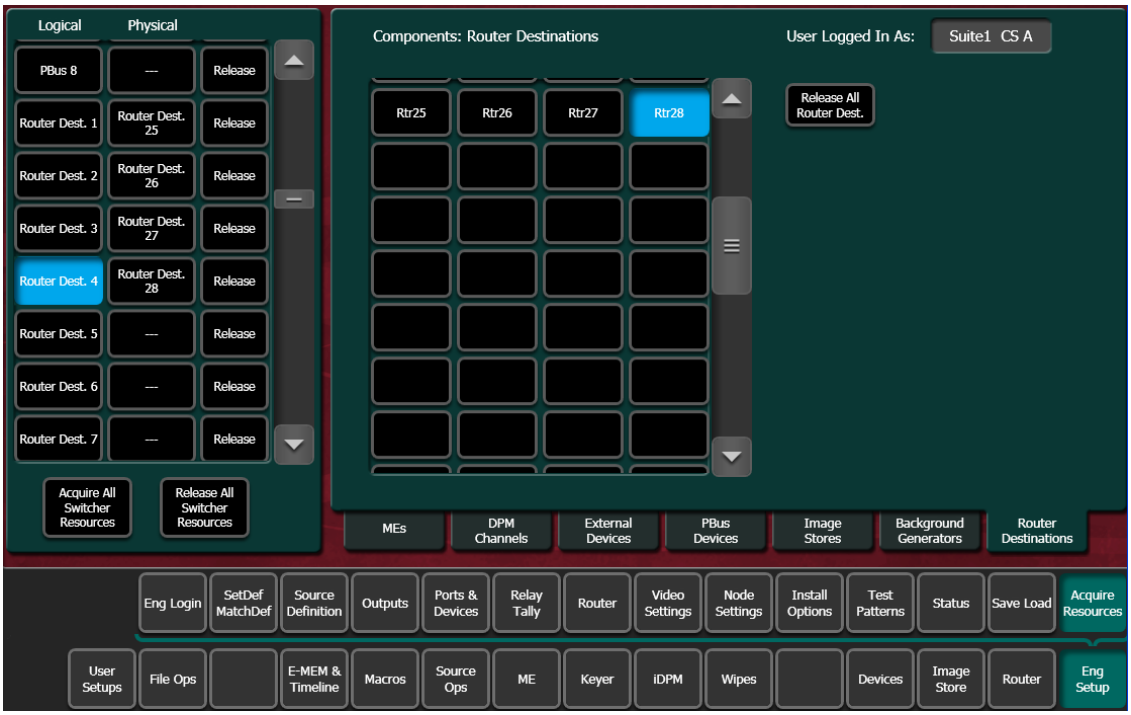
Background Generators Menu

Figure 173. Background Generators Acquire Menu



Router Destinations Menu

Figure 174. Router Destinations Acquire Menu



Section 7

External Interfaces

Introduction

The Kayenne Video Production Center has that name because it is more than just a video switcher. For example, a Kayenne system is also able to control a variety of external devices.

Devices can be associated with Kayenne sources, via source definition. Three types of Kayenne source definitions are available:

- **Direct** (used for standard video and key inputs, not for external interfaces, as explained in *Direct Source Definition* *on page 157*),
- **Device** (used for DDR and VTRs). These devices can be controlled via Ethernet or serial port using various protocols. Each device uses a Device Definition that specifies the control mechanism.
- **Router** (used with an external routing system). This type permits the assignment of an external routing system destination to that Kayenne source. Once assigned, different external routing system sources can be routed to that destination with the Kayenne system. It is also possible to associate a router source to a device, to allow machine control of that source whenever it is selected on the Kayenne Control Panel.

Kayenne serial ports can also be used to control PBus configured external devices.

GPI outputs can be configured to provide relay closure control of hard-wired external devices from the Kayenne system.

In addition, external control of a Kayenne system is possible using GPI input connections, and by configuring an Editor with a Kayenne serial port.

General External Device Interfacing

In general, interfacing an external device to the Kayenne system involves the following elements:

- Control cabling and configuration (Ethernet, serial ports, GPIs).
- Video cabling (Kayenne Frame input connectors).
- Creating an External Device Definition (for DDR, VTR, etc.) and assigning it to a Kayenne source definition.
- Mapping that Kayenne source to a Control Panel button.

Once configured, that external device can be selected as a source on the Control Panel. If a DDR or VTR it can be directly controlled from the System Bar, Device Control Module, Multi-Function Module, or from the Kayenne Menu Panel, as well as via EMEM.

PBus and GPI control of external devices is generally accomplished by the operator using EMEM. PBus and GPI triggers can be manually tested from the Kayenne Menu application, and Macros can be created to allow triggering using Control Panel buttons.

Routing System configuration with Kayenne involves establishing communications between the Kayenne and Routing control systems, assigning Router destinations to Kayenne sources, and identifying which Router sources will be accessible to the Kayenne system.

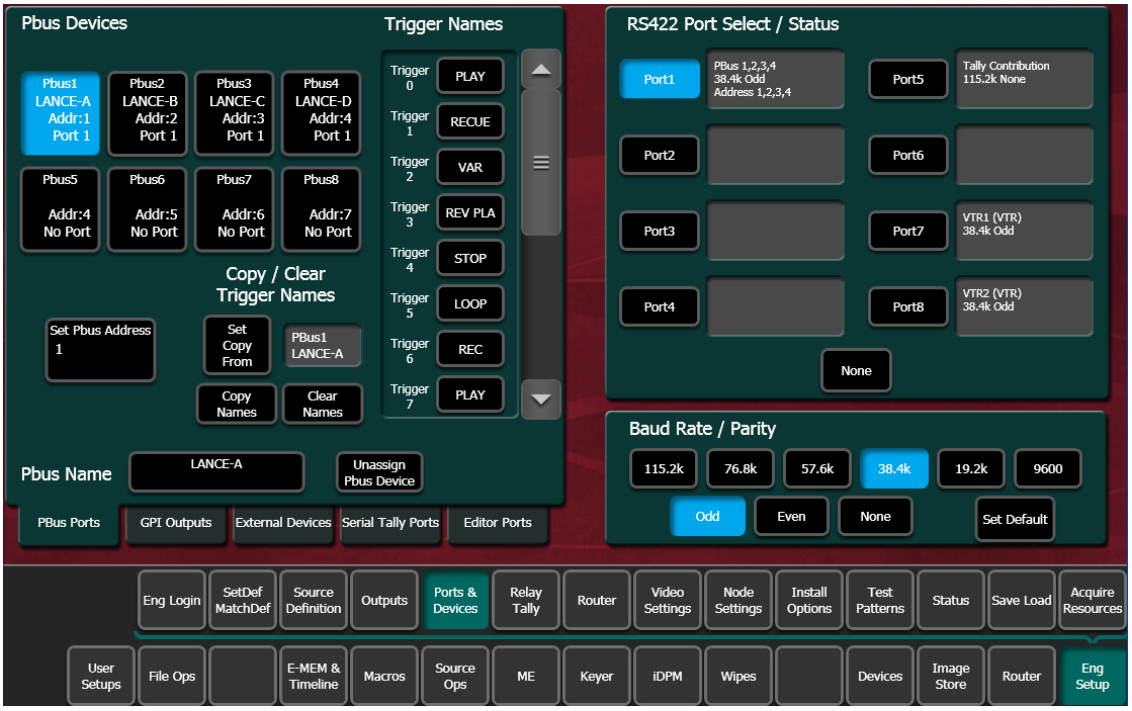
Ports & Devices Menus

Control ports, GPI outputs, External Device Definitions, Serial Tally and Editor Ports are configured with the Ports & Devices Menus, accessed via **Eng Setup**, **Ports & Devices**, and then touching the appropriate tab.

PBus Ports Menu

The PBus Ports Menu (Figure 175) is used to configure serial ports for PBus control of external devices. Eight PBus devices are supported, which can be assigned to the same or different serial ports, using PBus addresses (0-7) when the same port is used for multiple devices.

Figure 175. PBus Ports Menu



PBus Devices – One of the eight available PBus devices can be selected on the upper left side of the menu. Once selected, the remainder of the menu is delegated to that PBus device.

RS422 Port Select / Status – The button for the port currently assigned to the selected item will be highlighted. Touching **None** clears the port assignment.

Baud Rate / Parity – Serial port settings are selected with these buttons. The **Set Default** button returns the settings to the Kayenne factory defaults.

PBus Name – Touching this button opens an alphanumeric keypad used to give the PBus device a descriptive name. These names appear on the separate Devices, PBus and PBus & GPI Enables Menus, to help the operator identify each function.

Set PBus Address – Touching this button opens a keypad allowing entry of a PBus address, which is required if multiple PBus devices use the same port.

Unassign PBus Device – Clears the name of the selected PBus device and also clears its port assignment.

Trigger Names – Names can be entered for each of the 16 PBus triggers (0-15), by touching each button.

Clear Names – Removes the names from the currently selected PBus device.

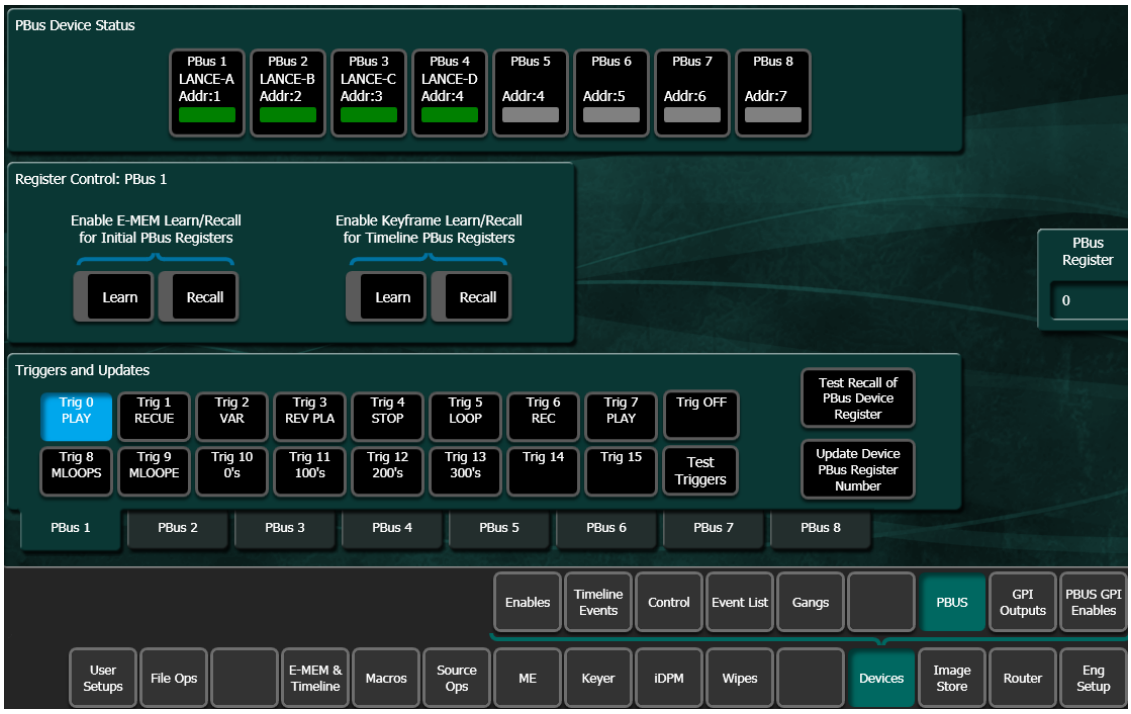
Copying Trigger Names

Trigger names can be copied from one PBus device to another.

1. Highlight the PBus device you wish to copy names from.
2. Touch the **Set Copy From** button to enter that device in the adjacent window.
3. Highlight the PBus device you wish to copy the trigger names to.
4. Touch the **Copy Names** button.

Once configured, PBus devices will be available to operators for use with EMEMs via the Devices, PBus menu (Figure 176).

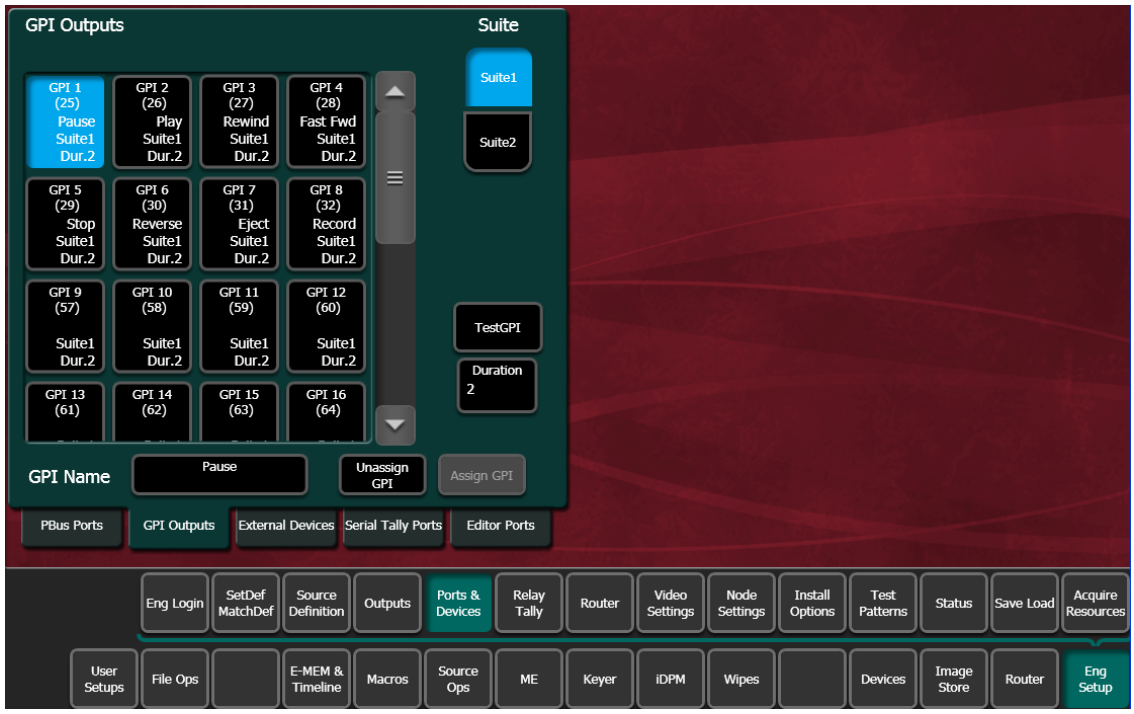
Figure 176. Devices, PBUS Menu



GPI Outputs Menu

The GPI Outputs Menu (Figure 175) is used to configure the Kayenne Video Processor Frame's GPI connectors.

Figure 177. GPI Outputs Menu



GPI Outputs – The buttons in the scrolling list represent the physical GPI output relays available on the Kayenne system. The functions performed by these relays depend on how they have been connected to the device being controlled. One output can be selected at a time.

GPI Name – Touching this button opens an alphanumeric keypad used to give the GPI Output a descriptive name. These names appear on the separate Devices, GPI Outputs and PBus & GPI Enables Menus, to help the operator identify each function.

Suite – A GPI can be assigned to Suite 1 or Suite 2 (the name of each suite may be different from that shown in the figure). To change the suite assignment, select the GPI Output in the scrolling list, unassign it from its current suite with the **Unassign GPI** button, select the other **Suite** button, and then touch the **Assign GPI** button.

Unassign GPI – Clears the suite assignment for that GPI, making it possible to reassign it to the other suite.

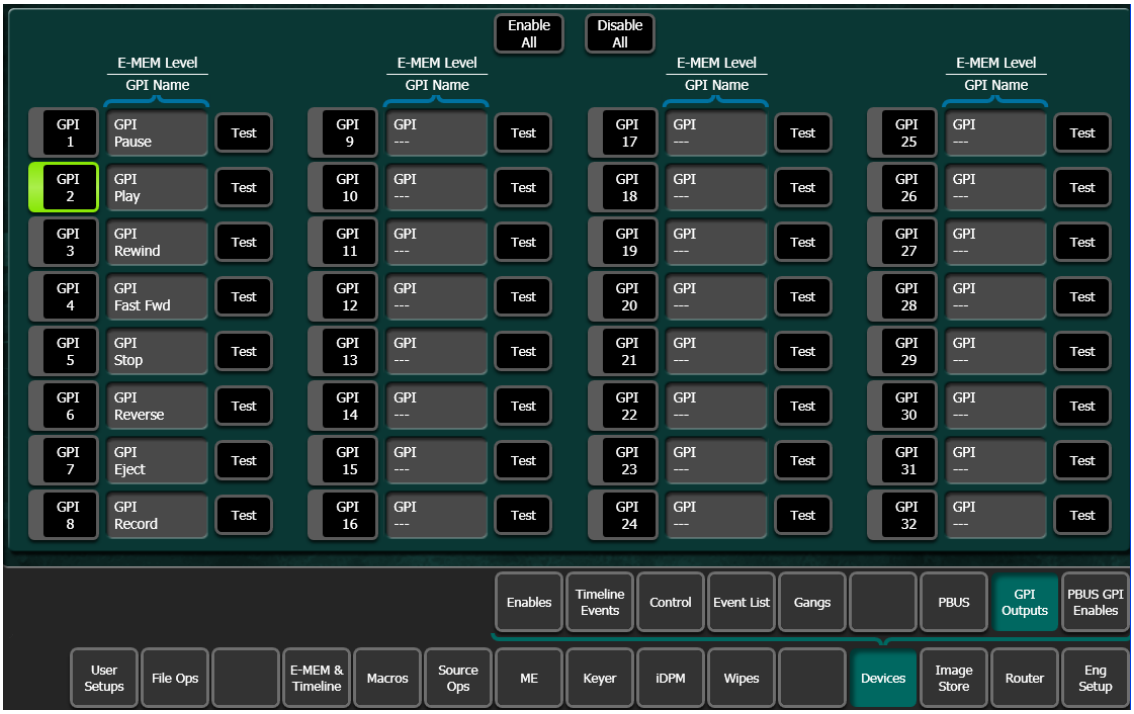
Assign GPI – Assigns the GPI to the **Suite** selected above.

Duration – Sets the duration the relay will be closed, in video frames.

Test GPI – Touching this button triggers the selected GPI.

Once configured, GPI Outputs will be available to operators for use with EMEMs on the Devices GPI Outputs menu (Figure 178).

Figure 178. Devices, GPI Outputs Menu



PBus and GPI Enables Menu

PBus and GPI Output functionality (communications) can be enabled and disabled by an operator from the Devices, PBus and GPI Enables Menu (Figure 179). When items are disabled on this menu, EMEM or Macro programmed PBus and GPI Output triggers will be inactive when the EMEM or Macro is run.

Figure 179. PBus and GPI Enables Menu

External Devices Menu

The Eng Setup External Devices menus is used to create and edit Device Definitions. Different menus are displayed depending on whether an Ethernet or serial control type of device is selected.

Figure 180. External Devices Menu, Ethernet Device

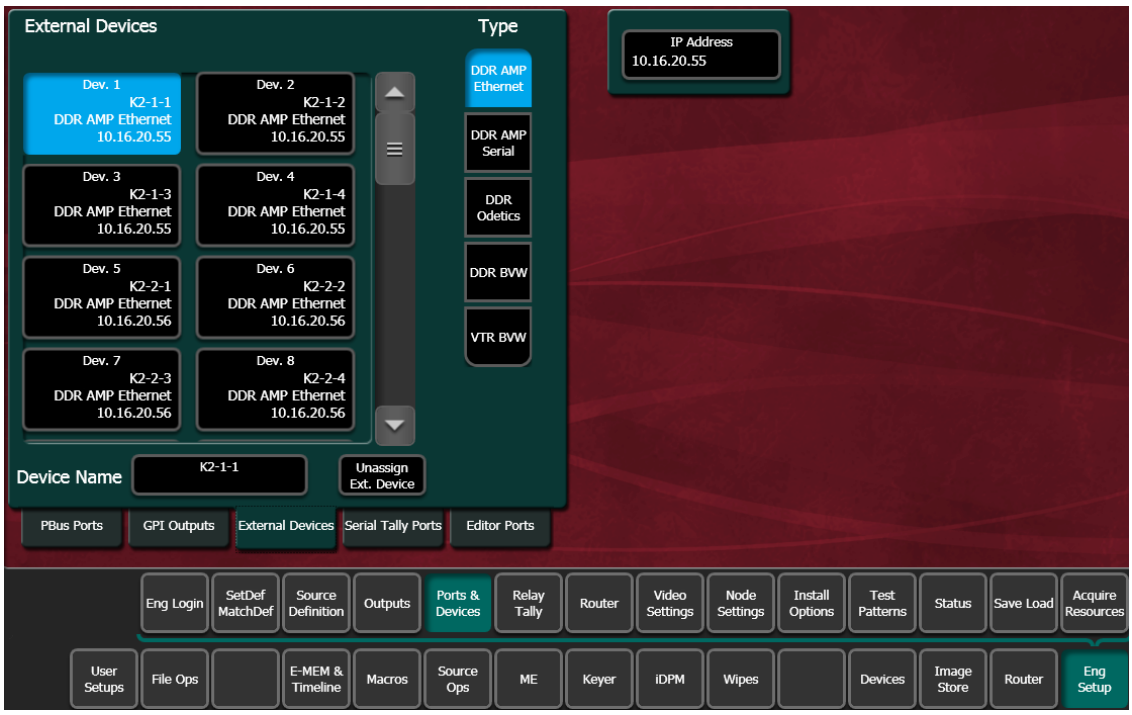
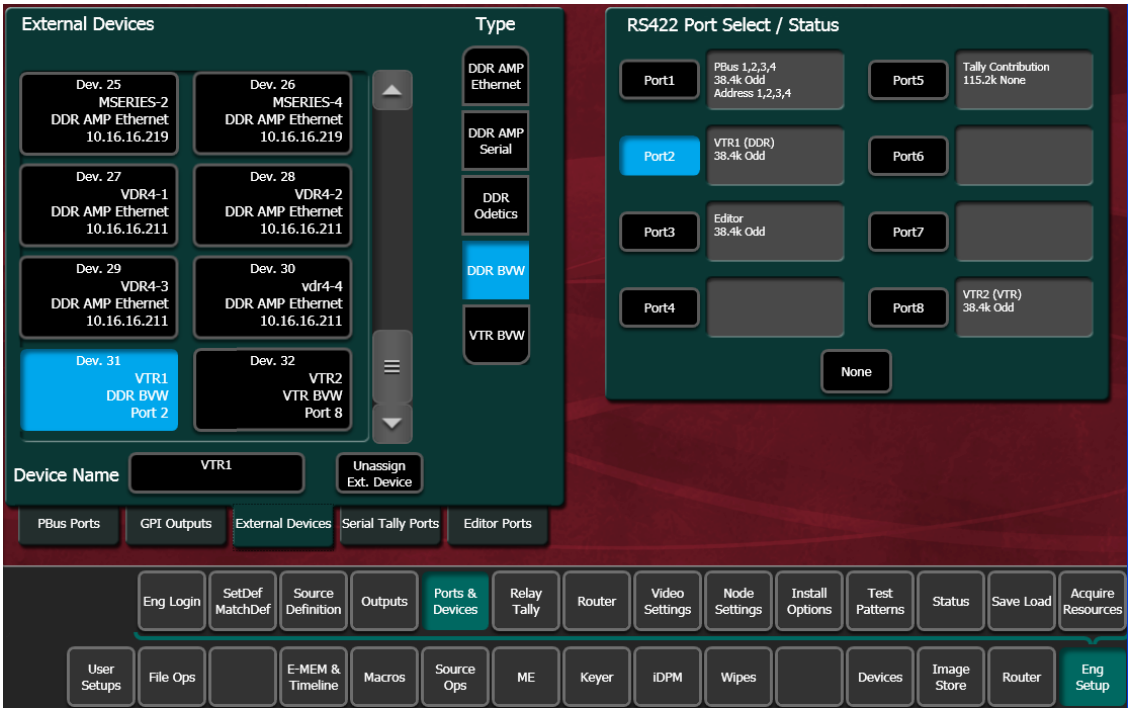


Figure 181. External Devices Menu, Serial Control Device



Device Definition

The Kayenne system uses a software External Device Definition object to define the capabilities of each device interfaced with the system.

External Device Definitions contain the interface information required for that external device, (e.g., IP Address or Serial Port). Each Device Definition is given a unique name. Once a Device Definition has been created for a device (DDR, or VTR), it can be assigned to a Kayenne source. That source then supports the specific capabilities of that external device. (PBus and GPI configurations are different, and are not associated with a particular Kayenne source.)

Touching an already defined item in the scrolling External Devices list on the left brings up information for that device and delegates the rest of the menu to that object.

Device Name – Touching this button opens an alphanumeric keypad used to give the External Device a descriptive name. These names appear on the Kayenne System Bar, Device Control Module, and Kayenne Menus.

Note When configuring servers with multiple channels, the channel number must be appended to the device name with a - character, and the base name be the same for all channels on the same server (e.g. 'Vdr4-1', 'Vdr4-2', etc.).

Type – Chooses a control protocol for the currently selected device.

- For Ethernet devices, and IP address field is available for entering the IP address of the External Device (Figure 180).
- For serial control devices, touching a Port button on the right assigns the selected device to that port (Figure 180).

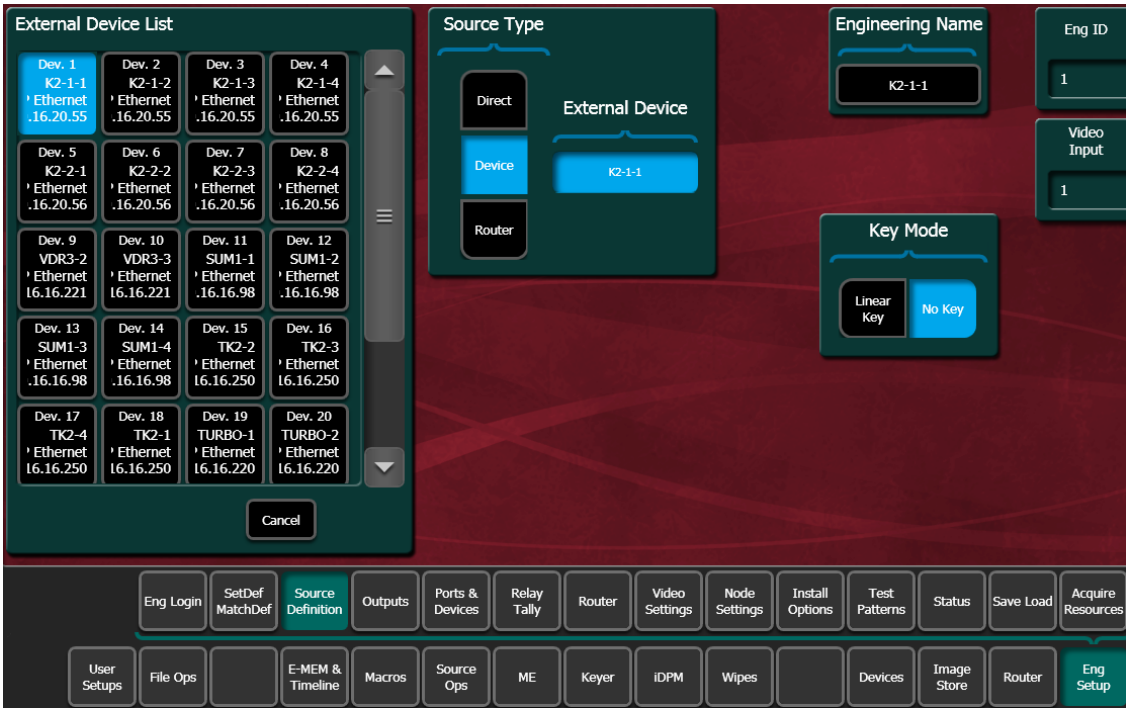
Unassign Ext. Device – Clears the definition of the selected item.

Creating an External Device Definition

1. Touch **Eng Setup**, **Ports & Devices**, **External Devices** to go to the External Device Definition menu.
2. Scroll through the list of devices on the left and select an available device.
3. Touch **Device Name** and enter a descriptive name for the External Device.
4. Choose the control protocol for that device from the **Type** list.
   - If an Ethernet protocol was selected, enter the IP address for the External Device.
   - If a serial protocol was selected, choose the port the device will use.

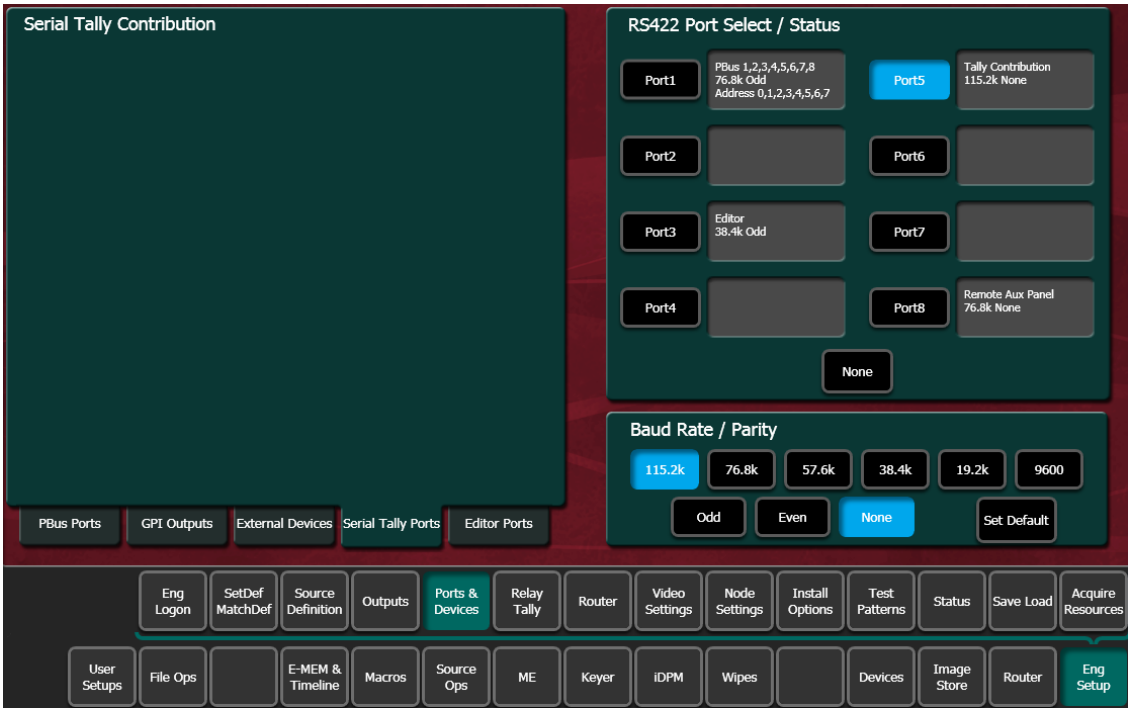
When External Device Definitions have been created, the Source Definition menu lists them when the **Device** Source Type has been selected and the **External Device** button is touched (Figure 182).

Figure 182. Source Definition Menu, Device Type Selected



Serial Tally Ports Menu

Figure 183. Serial Tally Ports Menu

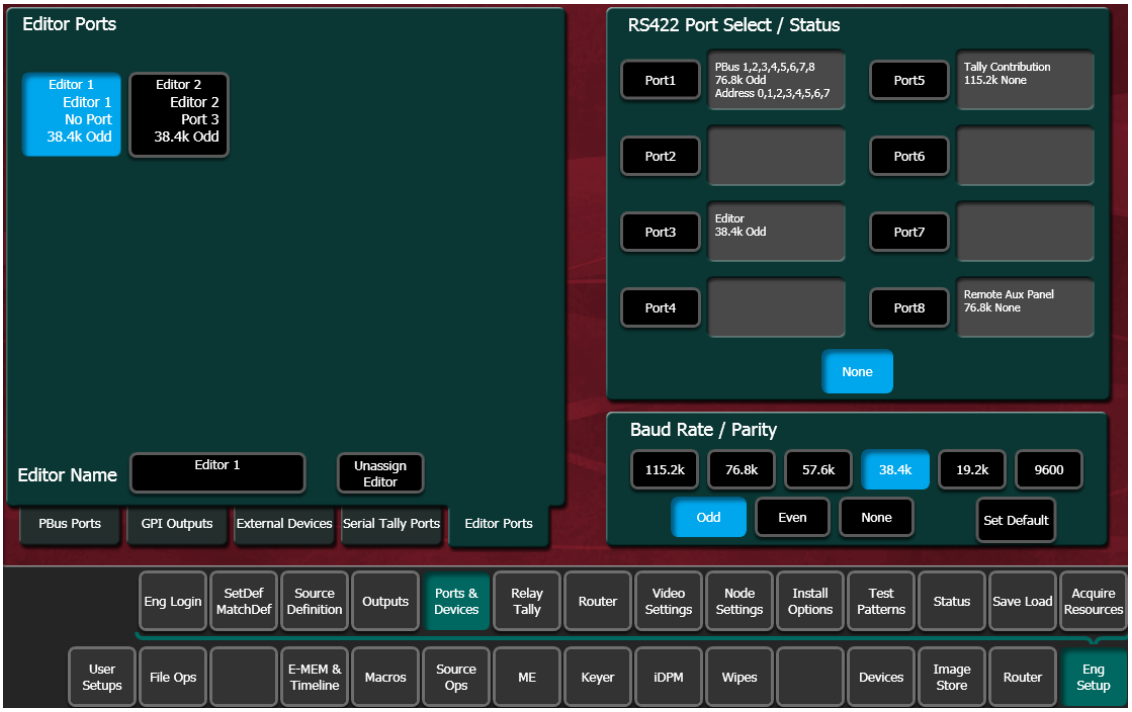


Serial Tally information can be routed to a serial port with this menu. Once assigned, serial protocol settings can be set with the lower controls.

See the separate *Grass Valley Switcher Protocols Manual* for technical information.

Editor Ports Menu

Figure 184. Editor Ports Menu



Editor Ports – Two editor ports can be configured and assigned to Kayenne Video Processor Frame serial ports. Selecting an Editor button on the left delegates the rest of the menu to that item.

RS422 Port Select / Status – The button for the port currently assigned to the selected item will be highlighted. Touching **None** clears the port assignment.

Editor Name – Touching this button opens an alphanumeric keypad used to give the Editor a descriptive name.

Unassign Editor – Clears the selected serial port's assignment.

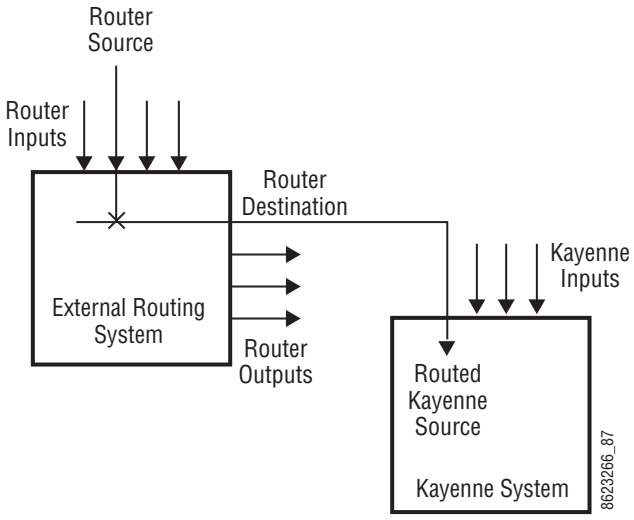
Baud Rate / Parity – Serial port settings are selected with these buttons. The **Set Default** button returns the settings to the Kayenne factory defaults.

Router Interface

Introduction

The Kayenne system can interface with an external routing system. A routing system connects a router source (router input) to a router destination (router output). Changing the router source sends a different signal to the destination (called a take). A router destination can in turn be connected to a Kayenne input and be configured as a routed Kayenne source (called switcher source in this discussion and in the Kayenne menus). The router acts as a pre-selector for the switcher source, and so increases the number of inputs available to a button on a Kayenne system bus (Figure 185).

Figure 185. Router Source, Router Destination, and Routed Kayenne Source



An external routing system can be configured into levels, to allow the switching of multiple signals simultaneously. For example, video signals can be organized on one level, and key signals on another. By specifying both levels when giving a router take command, both the video and key signals of a source will be routed to their destinations.

Note Kayenne system router Take commands are only applied to all router levels.The external routing system's destinations must be configured with all router levels selected.

Router control panels can also protect router destinations from being changed by other control panels. A protected router destination cannot be changed by a different control panel, but may be changed by the panel that set the protection. Protections help prevent inappropriate router source changes. The Kayenne system can be considered a type of router control

panel, and so the Kayenne system can protect router destinations. Kayenne system router protect commands are applied to all router levels.

Features

- Interfaces to the Grass Valley SMS 7000, Encore, and other routing systems via Native protocol.
- Kayenne system configuration of routed Kayenne sources.
- Names of router sources are shown on the Kayenne Control Panel and Kayenne Menu Panel displays.
- Router source selection control via the Kayenne Control Panel and Kayenne Menu Panel displays.
- Protection types (None, Protect, and On Air).

Router Interface Installation

Control Interface Cabling

Connect an Ethernet cable from a Kayenne system Ethernet switch to the external routing system Ethernet network. The Kayenne system can communicate with devices on different networks via a gateway router. If a gateway router is not used, the external routing system must be on the same subnet at the Kayenne system.

Video Interface Cabling

Connect each external routing system destination to an available input connector on the Kayenne Video Processor Frame. You will need to know the input connector number used for each destination when you configure the Kayenne source.

External Routing System Configuration

It is assumed the external routing system has already been configured for basic use in your facility, and only needs to be re-configured to interface with the Kayenne system.

Kayenne Router Configuration Menus

Router Menu, Eng Setup

The Eng Setup Router menu is used to set the IP Address(es) the Kayenne system will use to communicate to the external routing system. The external routing system can have an optional redundant, or secondary, controller which takes over should the primary fail. Both router control systems will require their own IP address settings.

Touch **Eng Setup**, **Router** selection button to go to this menu (Figure 186).

Figure 186. Eng Setup Router Menu

The **Status** indicator is red when communication is not detected, and goes green when communication is established.

To Set the IP Addresses:

1. Touch the **Primary IP** data pad and enter the primary address of the router with the pop-up keypad.
2. Touch the **Secondary IP** data pad and enter the secondary IP address of the router, if appropriate. If the router has only one control system, leave this address set to the blank default.

Note If the Kayenne system has been configured with a router IP address but a connection to the router has not been established, changing the IP address in this menu will not make the Kayenne system immediately try to connect to the new router address. The Kayenne system will automatically try to connect after about 30 seconds using the entered router IP addresses.

Primary and Secondary Router Communications

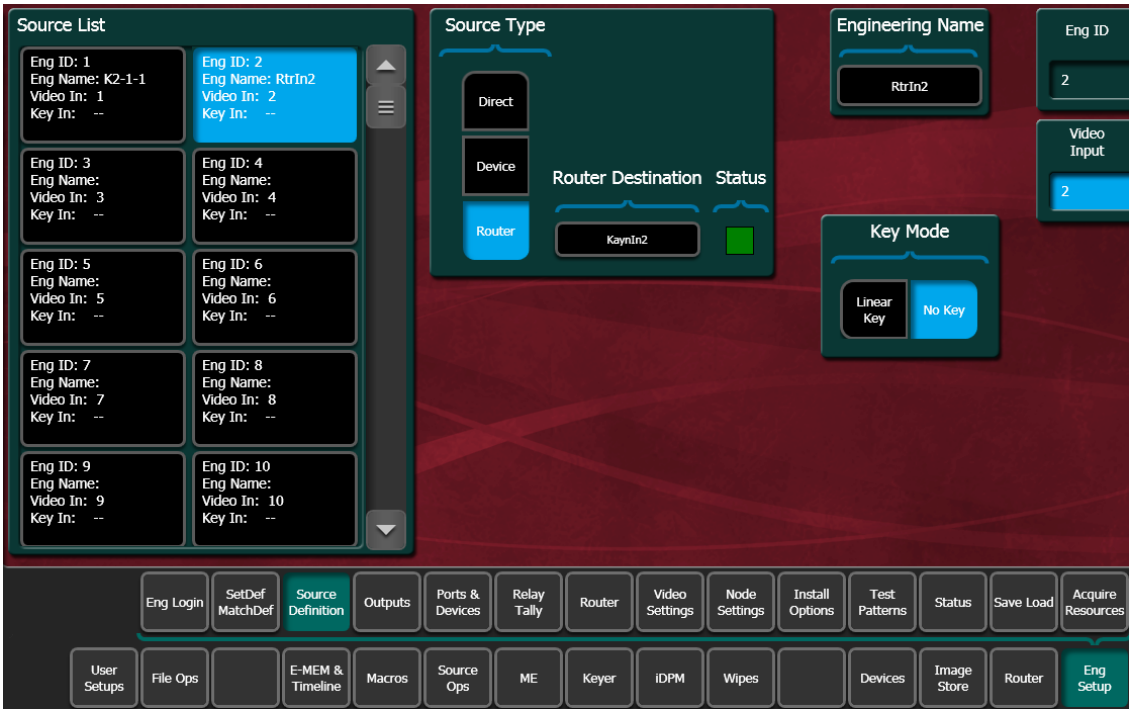
The Kayenne system will initially use the primary router IP address for communications. If the primary control system fails to respond, the Kayenne system will attempt to use the secondary IP address for router communications, and if successful will continue using it in the future. If communications then is lost to the secondary control system, the Kayenne system will attempt to reestablish communications with the primary router control system.

Source Definition Menu, Router Source

The Eng Setup Source Definition menu is used to define routed Kayenne sources, which includes specifying which router destination will be associated with each switcher source.

1. Press the **Eng Setup** Menu panel button, then touch the **Source Definition** category selection button, to go to this menu (Figure 187).

Figure 187. Source Definition Menu



2. Select the Kayenne source to be configured with the router on the left scrolling list.

3. Touch the Video Input data pad and enter the number of the Kayenne input that will be used with the router video destination.

4. If the routed source will have an associated key signal, touch the appropriate Key Input button, then touch the Key Input data pad and enter the number of the Kayenne input that will be used with the router key signal destination.

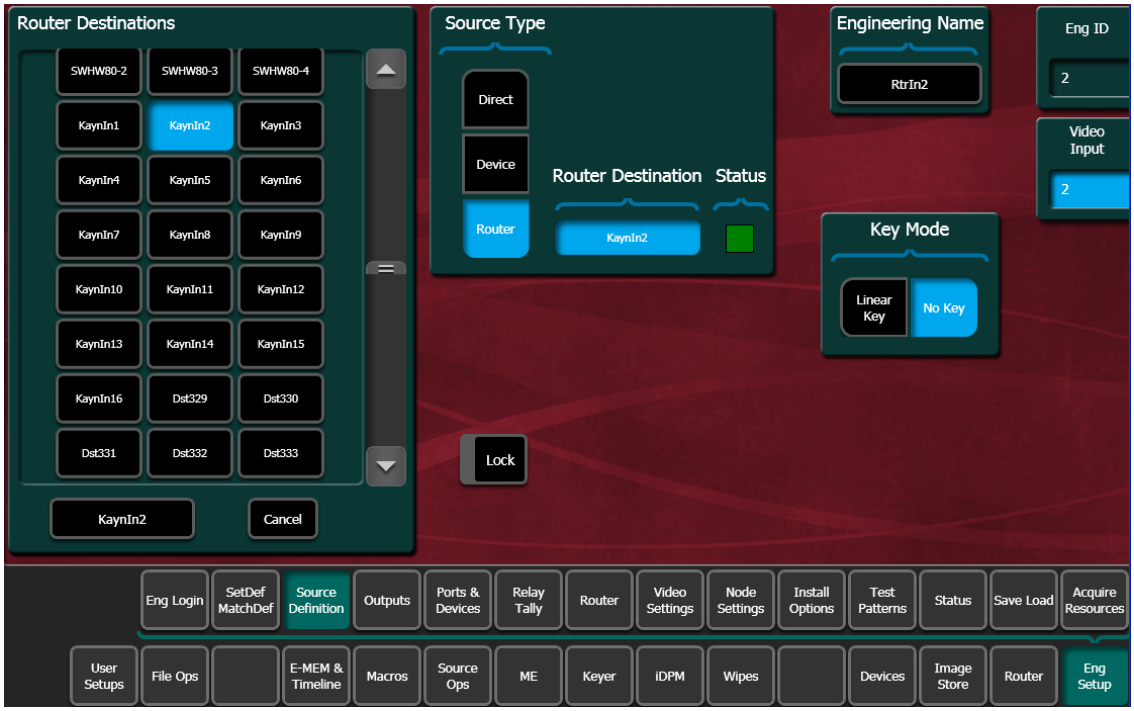
Note If you assign a key input, the router system needs to be configured to switch that key destination along with the video destination. Router levels can be used to accomplish this.

5. Touch the **Router** type button to identify it as a routed Kayenne source.

Note The adjacent status indicator is green when a router is detected, and red when there is no response. If red, you should check the Kayenne or router system configuration or the physical Ethernet connections.

6. Touch the **Router Destination** data pad to open the Router Destinations menu. The Kayenne Video Processor Frame receives a list of destination from the router and displays them on scrolling list on the left (Figure 188).

Figure 188. Router Destination Selection Menu



7. Touch the button for the desired destination to assign it to the previously selected Kayenne router source.

8. Complete the source definition by entering an engineering name using the standard source definition procedure.

User Setups

Once a Kayenne routed sources has been defined, it can be mapped to source buttons using the standard button mapping procedure (User Prefs), and can be given alternate names (Suite Prefs, Source Patch menu).

Section 8

Maintenance

Introduction

This section provides routine maintenance information for servicing the Kayenne Video Production Center.

Servicing Precautions

Before performing any type of Kayenne system maintenance or trouble-shooting, read the complete *Safety Summary* *on page 15* at the front of this manual.

Grass Valley Web Site

The URL for the Grass Valley web site can be found on page 4. Visit the website for documentation, software updates, online support (including FAQs), spare parts information, and a link to the File Transfer Protocol (FTP) site.

Grass Valley Customer Support FAQ Database

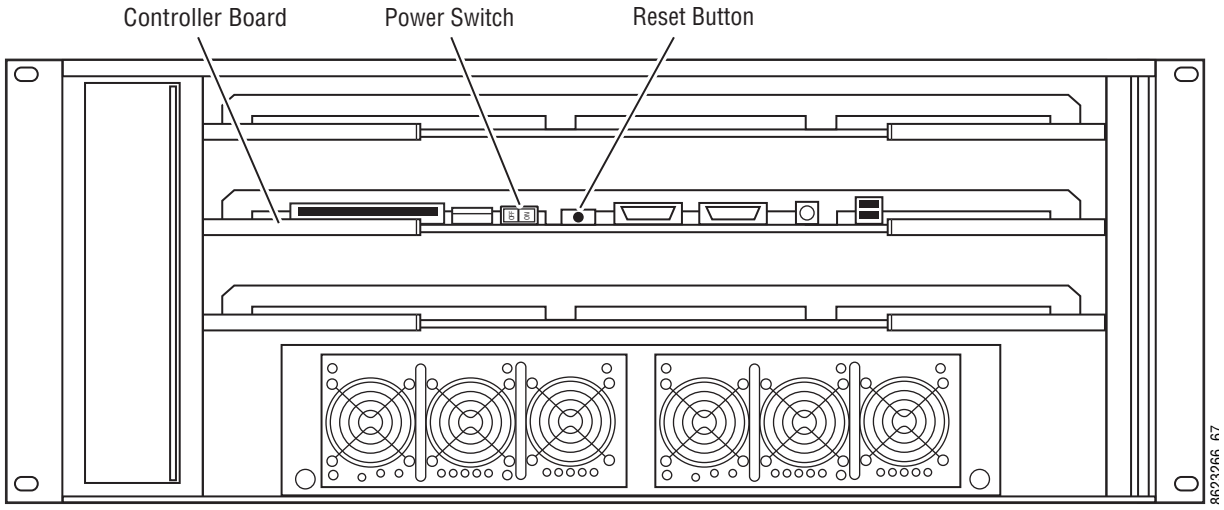
Answers to many common questions can be found by searching the Grass Valley Customer Support Frequently Asked Questions (FAQ) database, available on the Grass Valley web site.

Reset Procedures

Video Processor Frame

A Video Processor Frame reset button is located near the center of the front edge of the Controller Board, accessed by opening the front door of the Frame (Figure 189). The 8-RU and 4-RU Frames use the same type of Controller Board. Pressing this button will reset both the Video Processor CPU and the Image Store Processor CPU. Powering the unit off and back on also resets the Video Processor Frame.

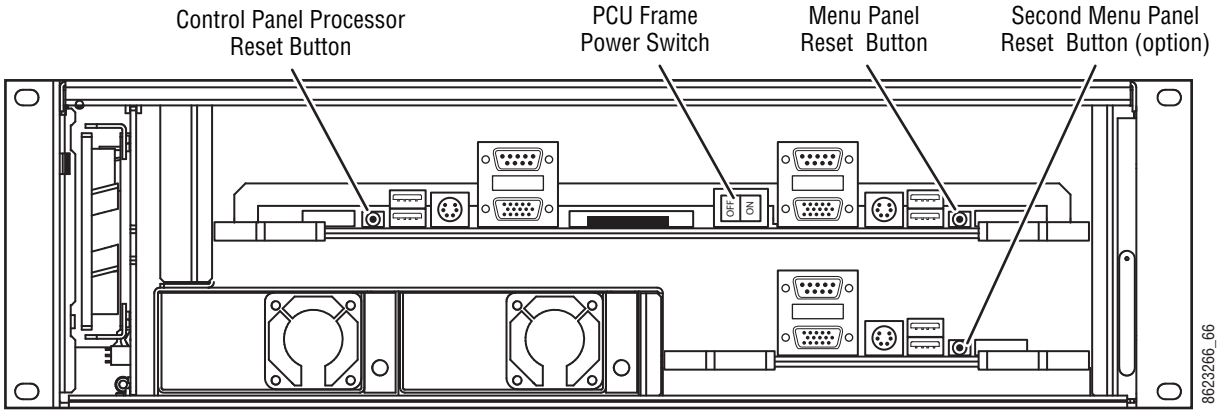
Figure 189. 4-RU Video Processor Frame Reset Button and Power Switch



Panel Control Unit (PCU)

The PCU has up to three reset buttons, one for the Control Panel Processor, one for the standard Menu Panel, and one for the optional second Menu Panel. These controls are accessible by opening the front door of the PCU Frame (Figure 190). Powering the unit off and back on also resets all installed components (Panel and Menus).

Figure 190. PCU Reset Buttons and Power Switch

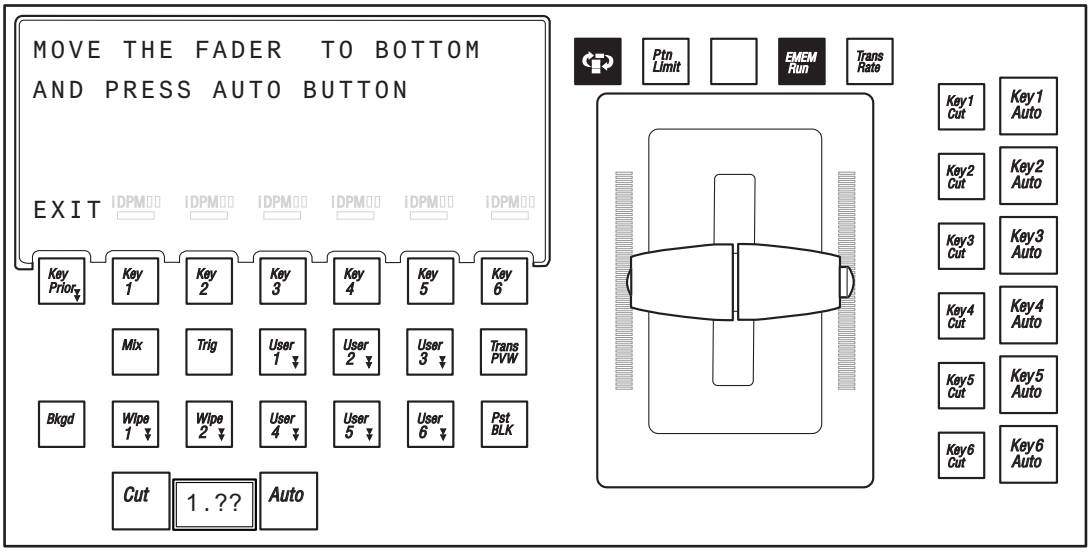


Control Panel Adjustments

Lever Arm Calibration

Hold down the **EMem Run** button and press the **Exchange ME** button (the left-most graphic symbol button over the Lever Arm) to enter calibration mode for that module (Figure 191). Follow the instructions displayed, moving the fader to the bottom and top limits and pressing the **Auto** button. When done, press the **Key Prior** button to exit calibration mode.

Figure 191. Button Hold Down for Lever Arm Calibration

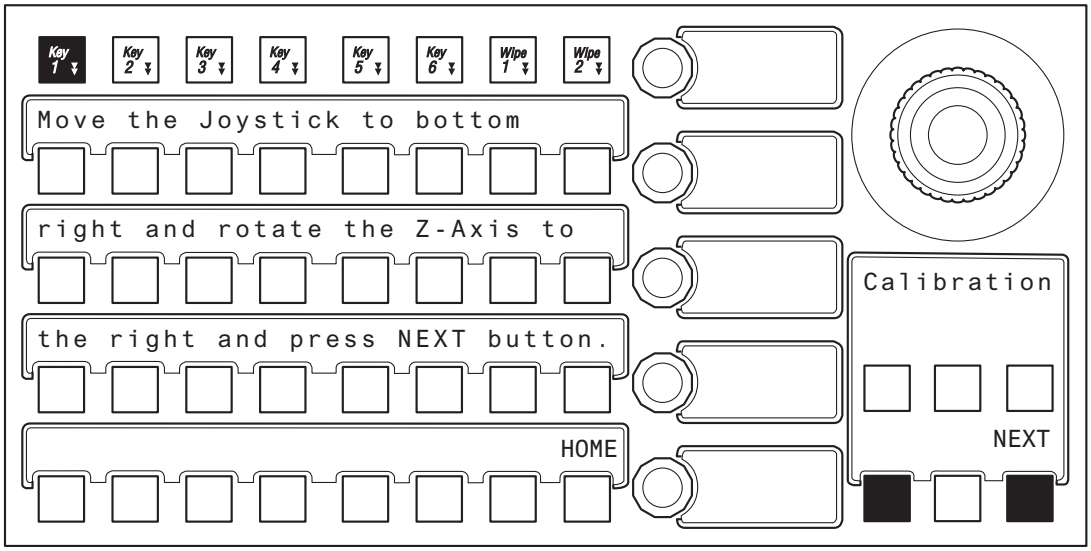


Calibration settings are saved with the module. Disconnecting, reconnecting, or moving the module to a different location on the Control Panel (including a different Stripe) should not affect the calibration for that module.

Joystick Calibration

If necessary, press the **Home** button to take the Multi-Function module to its Home state. Hold down the two bottom outside buttons below the Joystick and press the **Key 1** button on the upper left to put the module into Calibration mode (Figure 192). Follow the instructions displayed, rotating the Joystick and pressing the bottom right button labeled **NEXT**. At the end of the calibration procedure that button label changes to **END**. Pressing the **END** button completes the calibration and returns the module to its Home state. Pressing the **Home** button at any time also takes the module back to the Home state, retaining the last calibration saved to the module.

Figure 192. Button Hold Down for Joystick Calibration



Calibration settings are saved with the module. Disconnecting, reconnecting, or moving the module to a different location on the Control Panel (including a different Stripe) should not affect the calibration for that module.

ME Stripe Mapping

The recommended PCU port to Stripe multi-pin cable connection order uses the following conventions:

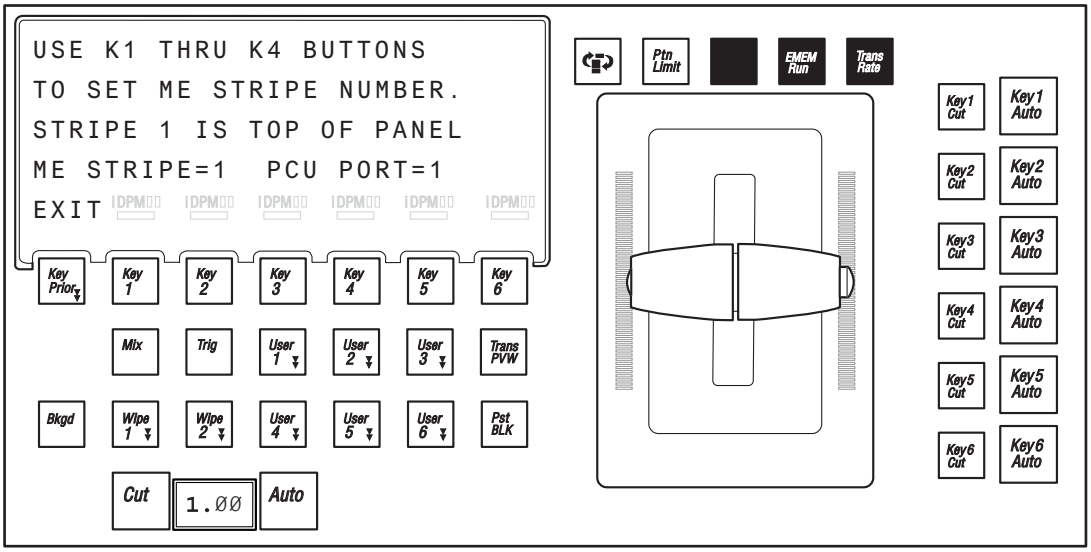
- Lowest PCU Port > Top ME Stripe (under Local Aux Stripe if present)
- Next PCU Port > Next lower ME Stripes in order
- Highest contiguous PCU Port > Local Aux Stripe
- Stripes in the same Suite should use contiguous PCU ports.

By following these cabling conventions, troubleshooting will be easier because the connections will be consistent.

It is possible to re-map ME Stripe to PCU port connections. This can be useful if an essential ME Stripe (for example, the one with the Multi-Function Module) fails due to a multi-pin cable problem. That essential ME Stripe can be re-assigned to a different PCU port that has an operational multi-pin cable, restoring Kayenne Control Panel operation.

To remap ME Stripes, on any Transition Module press the three right-most buttons over the Lever Arm at the same time to enter ME Stripe Mapping mode (Figure 193).

Figure 193. Button Hold Down for ME Stripe Mapping



On the ME Stripe you wish to remap, press a **Key 1** through **Key 6** button on the Transition Module in that Stripe to choose a PCU port for that Stripe. If that PCU port is used by another Stripe, it will be swapped.

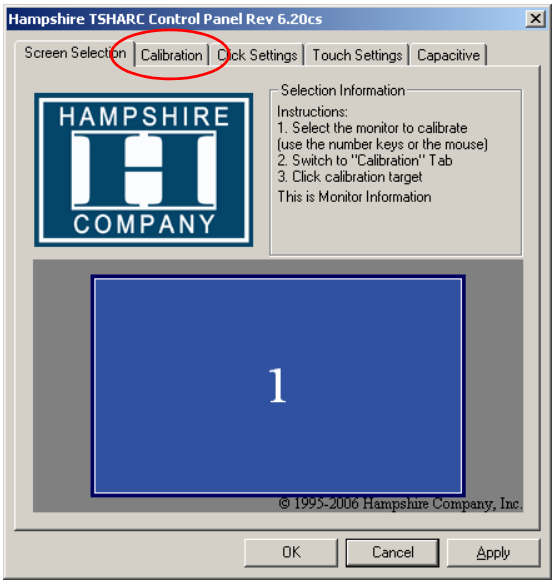
When the Stripes are remapped, press the button labeled EXIT (**Key Prior**). The display informs you that mapping changes take place after reboot, and a with a Reboot Now prompt appears. Pressing the button labeled YES will reboot the Panel.

Touchscreen Calibration

The Kayenne Touch Screen Menu Panel is adjusted in the factory before shipment, and so should not require calibration. If the Menu Panel does not respond correctly to screen touches, however, you can perform this procedure.

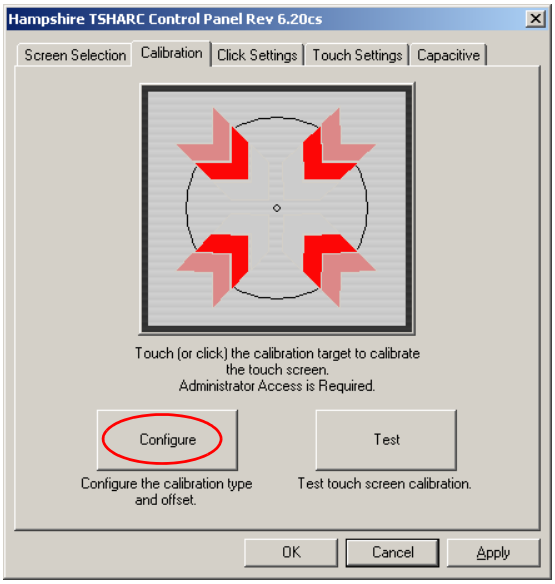
1. **Minimize** or **Exit** the Kayenne Menu application.
2. With the Windows desktop visible, click on **Start**/**Programs**/**Hampshire TSHARC Control Panel**. The Hampshire application will open (Figure 194).

Figure 194. Hampshire Calibration Application



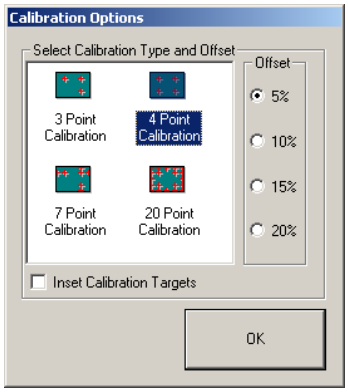
3. Select the second **Calibration** tab on the top (Figure 194) to open that menu screen (Figure 195).

Figure 195. Calibration Menu Screen



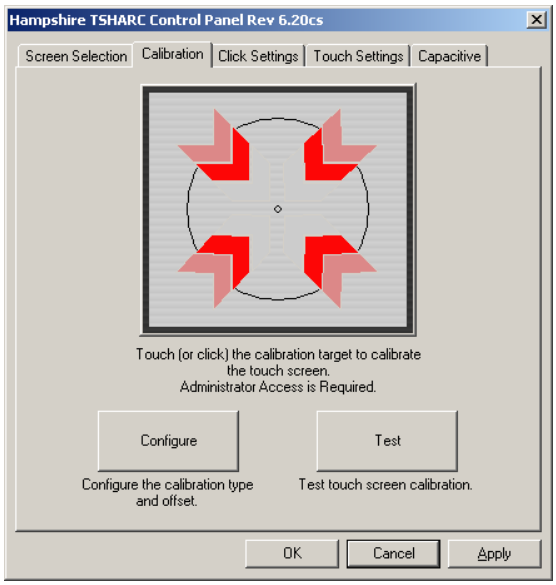
4. Touch **Configure** on the lower part of the screen (Figure 195) to open a menu for selecting the calibration type (Figure 196).

Figure 196. Calibration Type Selection



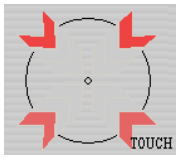
5. Touch **4 Point Calibration** and then **OK**. You will return to the Calibration Menu screen (Figure 197).

Figure 197. Calibration Menu Screen



6. Start the calibration process by touching the center of the calibration box and circle where the red arrows are pointing (Figure 197).

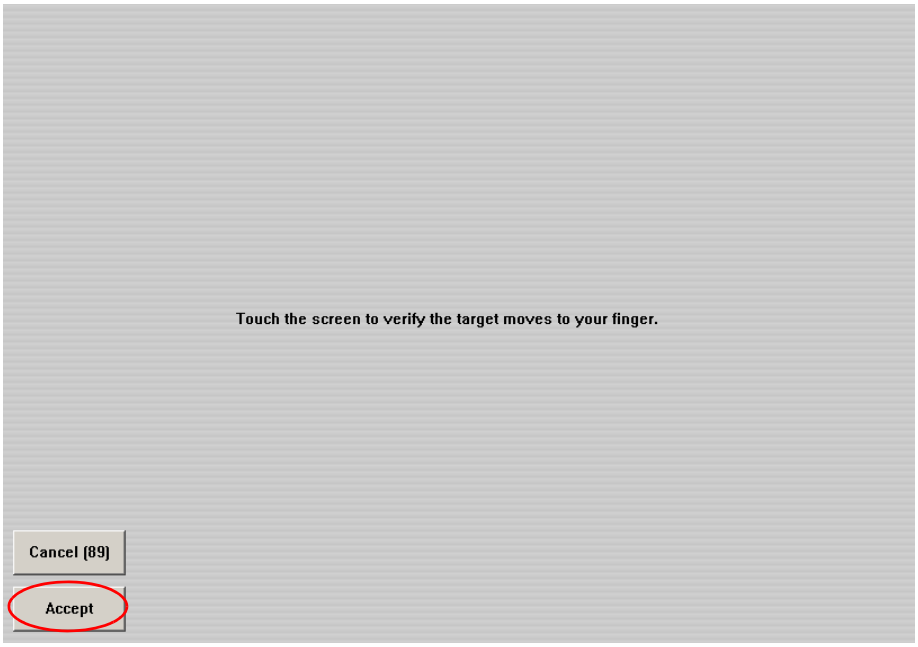
Figure 198. Calibration Box



7. The Calibration Menu screen will then go away and a new calibration target circle will appear in a corner of the screen (Figure 198).

8. Touch and hold the dot in the center of the small calibration box. The screen will report **TOUCH**, then **HOLD**, and then **RELEASE**. When done the application will register the location and move the circle to another corner. Repeat for all four corners. A blank screen will then appear (Figure 199).

Figure 199. Touchscreen Calibration Final Confirmation Screen



9. Touch the screen to verify the calibration. A calibration circle will appear and follow your finger touch across the screen. If satisfied, touch the **Accept** button at the bottom of the screen to save the calibration.

10. The Calibration Menu screen then reappears (Figure 197 on page 254). Touch **OK** at the bottom of the screen to exit the application.

Kayenne Software Installation

Kayenne systems are shipped with the current software version installed. Updates to Kayenne system software are available for download from the Grass Valley website. Software installation tools are provided with each update package.

Refer to the separate *Kayenne Release Notes* for complete software installation instructions.

Kayenne Software Option Authorization

Introduction

Some Kayenne system options have software components that can be enabled via an authorization process, using authorization codes. Authorization codes are also used for tracking maintenance contracts.

New Kayenne systems ship with the appropriate authorization codes installed, enabling all purchased options. When new optional features become available, Grass Valley sends new authorization codes to the customers.

Authorization Codes

The authorization process involves receiving an authorization code from Grass Valley and entering it in a menu on the Kayenne system. The authorization code is associated with a particular Kayenne Video Processor Frame, identified by a System ID#, and is not transferable to different hardware. If you have multiple Kayenne systems at your facility, you will need to enter an authorization code onto each system.

Standard authorization codes (Permanent) apply to purchased options and maintenance contracts. Other authorization codes (Temporary) may also be available that can enable selected options for a limited time. Temporary authorizations can be used for trial demonstrations and other special purposes. Temporary authorizations add to any permanently enabled options, but these additional options are disabled after the allotted time elapses.

Expiration Dates

Maintenance contract and temporary authorizations have expiration dates. Messages will be posted on the Kayenne Menu when an expiration date approaches. Expirations occur at midnight, but do not immediately go into effect. Instead, any expired options continue to operate until the system is power cycled or reset, at which time the options are disabled. This is intended to prevent loss of functionality during on-air operations. Expiration of the maintenance portion of an authorization will not disable any options.

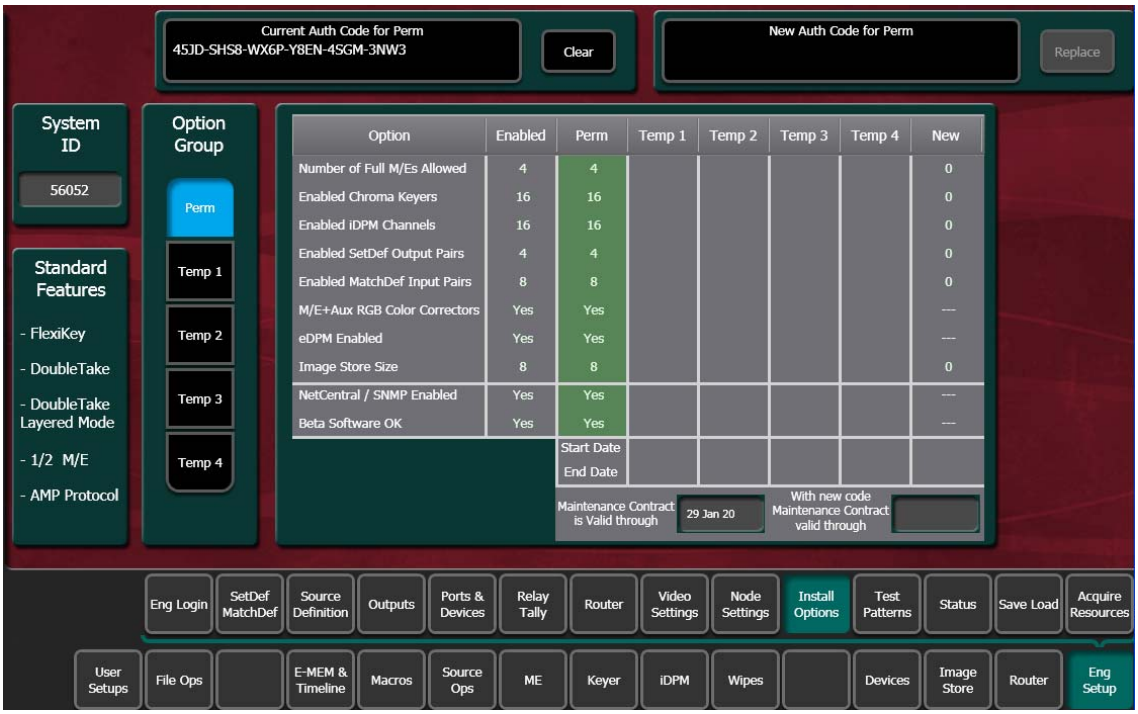
Authorization Procedure

Acquire Authorization Code

Grass Valley will be sending authorization codes to all Kayenne system customers. If you have received your codes and the Kayenne system IDs are correct, proceed to *Enter Permanent Authorization Code* *on page 258*. If you do not have valid authorization codes you will need to acquire them from the Grass Valley.

1. Go to the Install Options menu by touching **Eng Setup**, **Install Options** (Figure 200).

Figure 200. Install Options Menu



2. Write down the System ID displayed on the upper left portion of the menu.

3. If you have more than one Kayenne system, repeat the above steps on every system that will have options enabled.

4. Contact Grass Valley Customer Support and request a code for each Kayenne System ID. If options have not already been purchased, you can order the options directly from the service representative.

Enter Permanent Authorization Code

1. Go to the Install Options menu (**Eng Setup**/**Install Options**) on a Menu Panel of the system whose options you are enabling (Figure 200 on page 257). Confirm that the System ID on the menu matches the System ID# of the authorization code.
2. Touch the **Perm** button in the Option Group pane.
3. Touch the **New Auth Code for Perm** data pad and enter the code on the pop-up keypad.

Note System ID and Authorization Codes are alphanumeric and need to be entered exactly. Authorization codes do not use the letters “o” or “l” to avoid confusion with the numbers “0” and “1”. The dashes in authorization codes are required for use.

4. Touch the button labeled either **Replace** or **Install** next to the new authorization code. The codes will be added and the expiration date of any maintenance contract will be indicated. If you do not believe the option statuses reported are correct, contact Grass Valley Customer Support to resolve the issue.
5. If options were removed, reset the Video Processor Frame.

Note When an option is removed, it remains operational until the Video Processor Frame is reset or power cycled. When an option is added, it becomes operational immediately without requiring a Frame reset.

6. Write down the authorization codes, specifying which system they apply to, and store this information in a safe place, should you need to re-enter the codes at some time in the future.

Temporary Authorizations

For demonstration or rental, optional features can be authorized temporarily. Once you have obtained the temporary authorization code, enter it on the Kayenne system using the procedure described above, except you first select one of the **Temp** buttons. Temporary authorization information is displayed on the right portion of the menu. Up to four temporary authorizations are allowed at a time. Temporary authorization features that are removed remains active until the Video Processor Frame is reset.

Video Processor Frame Web Pages

Web browser access is available for the Kayenne Video Processor Frame. Using any web browser able to access the Kayenne network, type the Video Processor Frame IP address in the browser’s Address field to view the following web pages.

Figure 201. Kayenne Video Processor Frame, Current Software

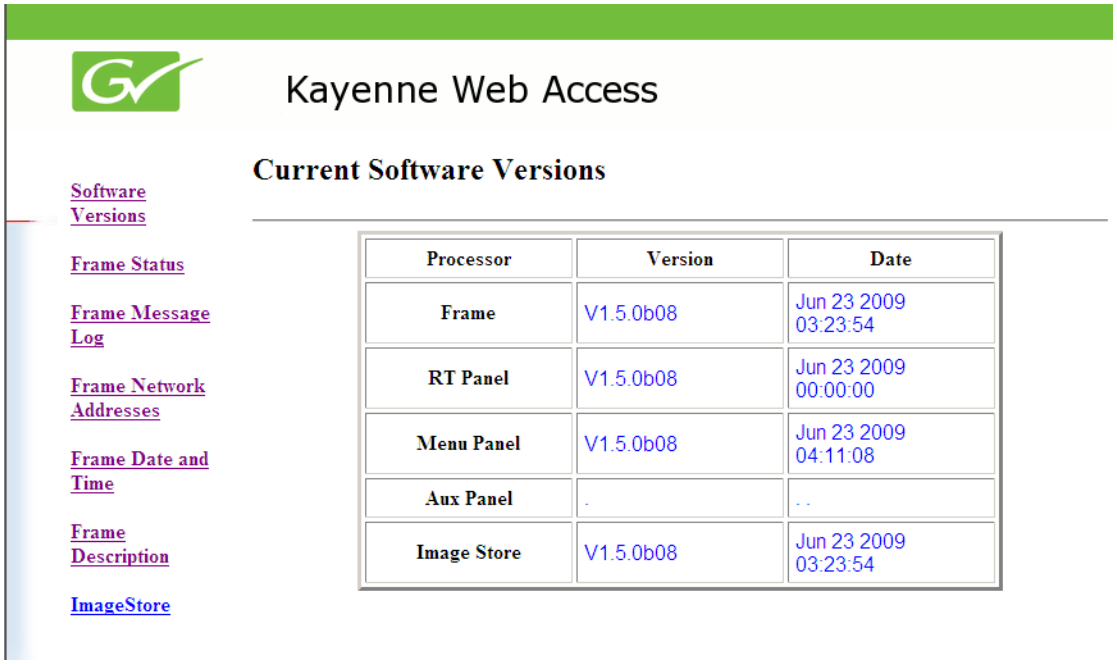


Figure 202. Kayenne Video Processor Frame, Frame Status (top)

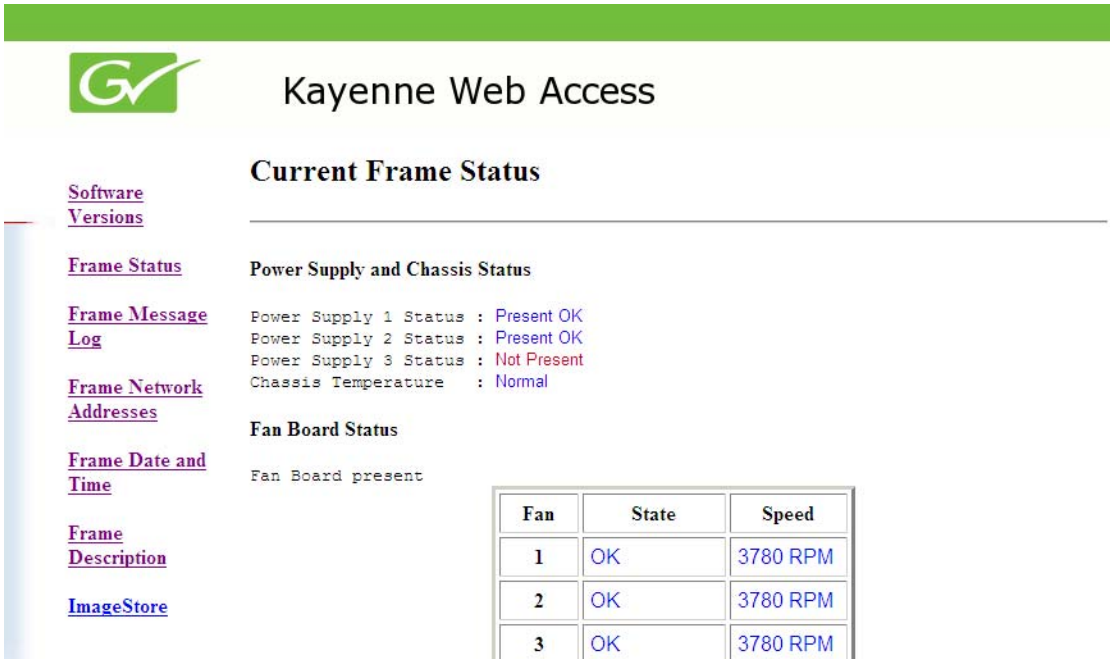


Figure 203. Kayenne Video Processor Frame, Frame Status (bottom)

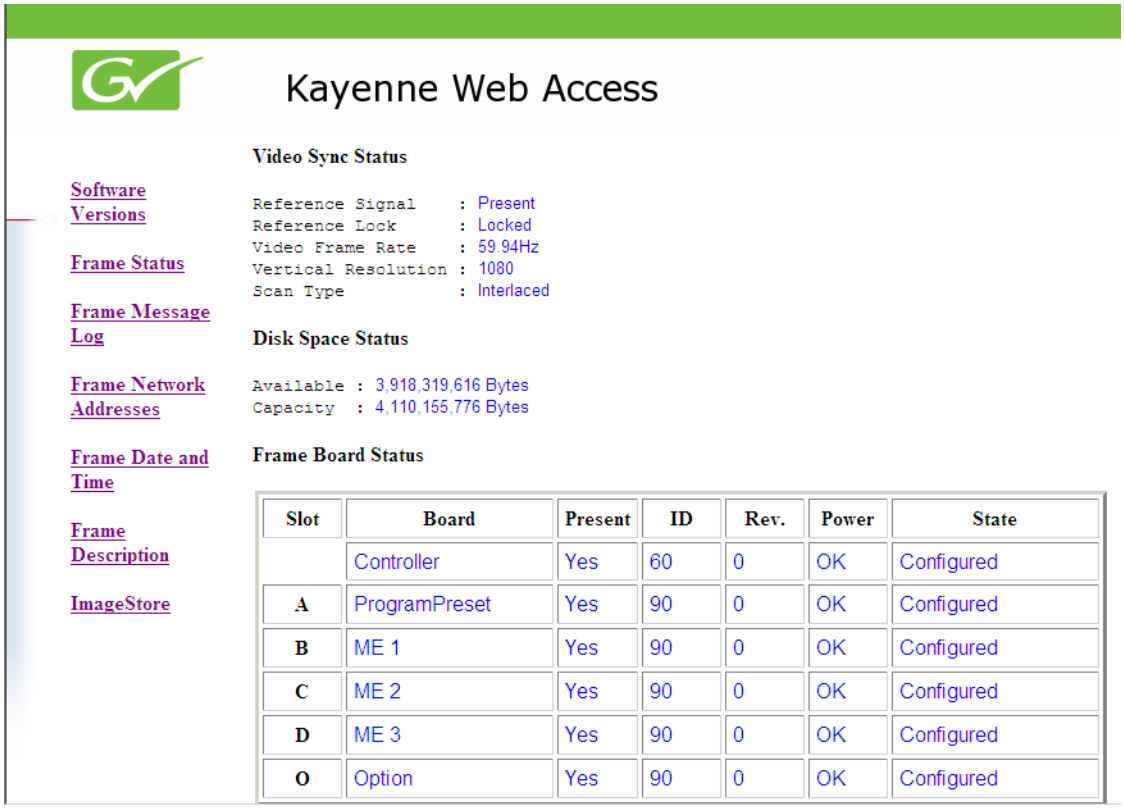


Figure 204. Video Processor Frame, Message Log (intended for troubleshooting)

Figure 205. Video Processor Frame, Network Addresses

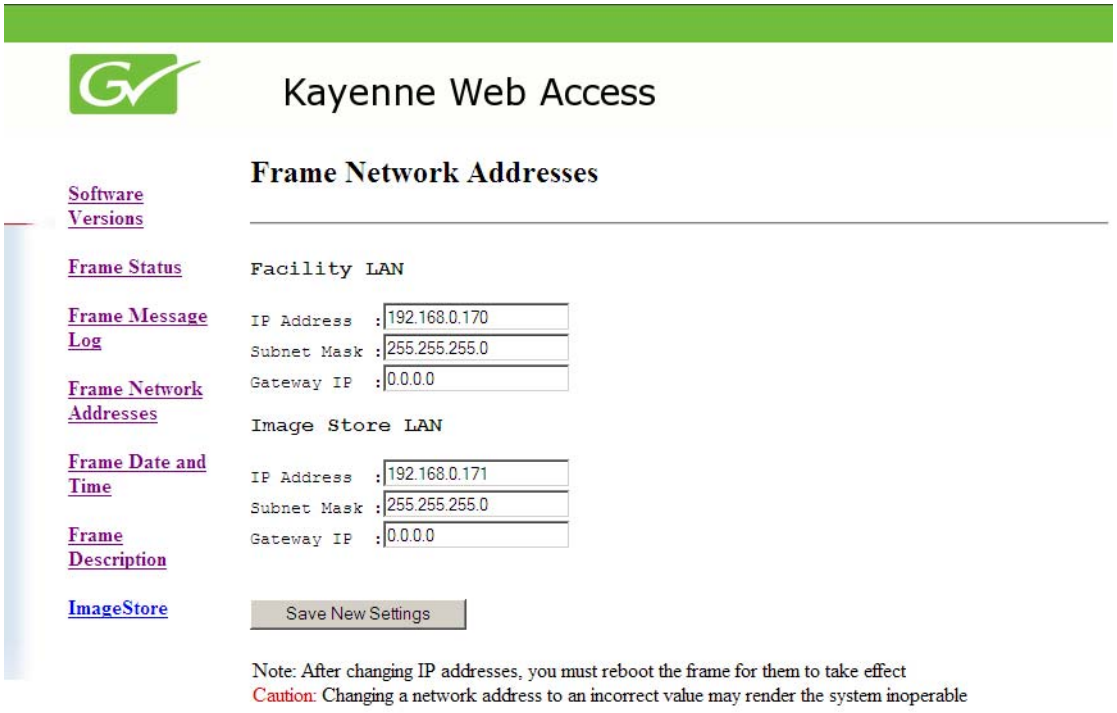


Figure 206. Video Processor Frame, Date and Time

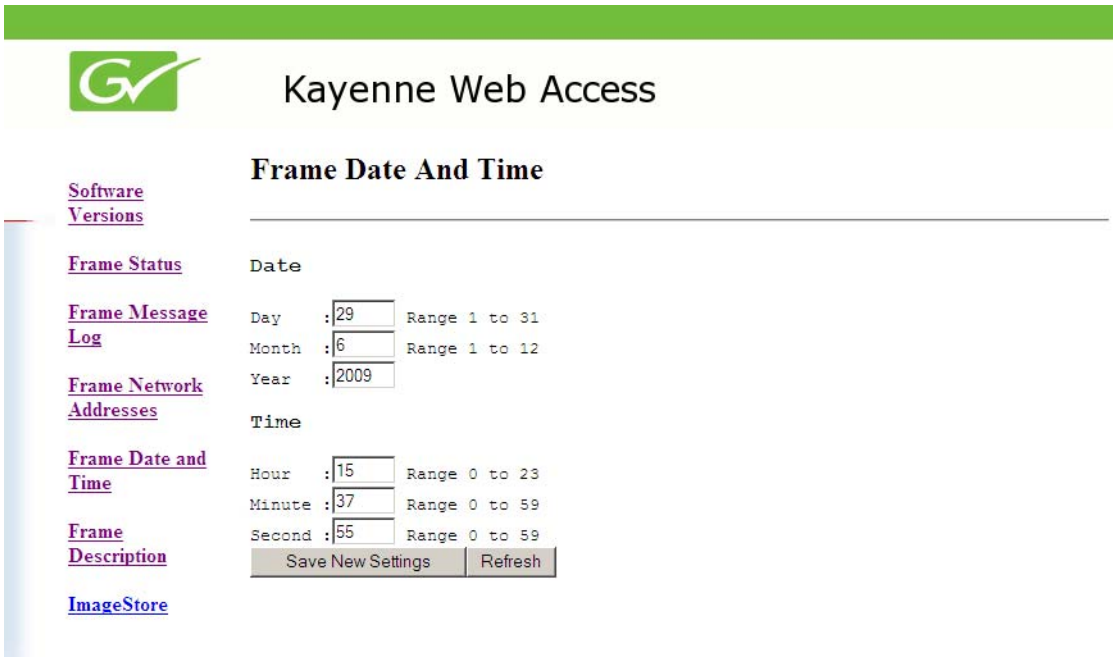


Figure 207. Video Processor Frame, Description

VP Frame Processor Board Replacement

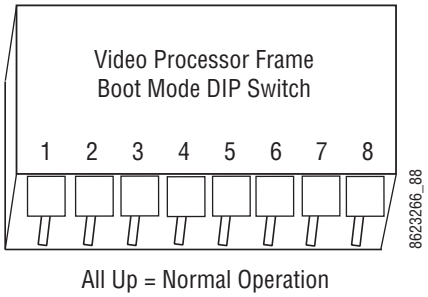
When replacing the Kayenne Video Processor Frame control processor board, in either the 4U or 8U Frame, verify that the S2 Boot Mode Dipswitch settings are all in the up or **Normal** position. The dipswitch is located next to the Flash card on the control processor board, as shown in Figure 208.

Figure 208. Kayenne Control Processor Board - S2 Boot Mode Dipswitch Location

CAUTION If the Dipswitch settings are not in the up or Normal position, the system may not boot.

Figure 209 shows the Video Processor Frame Boot Mode switch settings in the Up (normal operation) position.

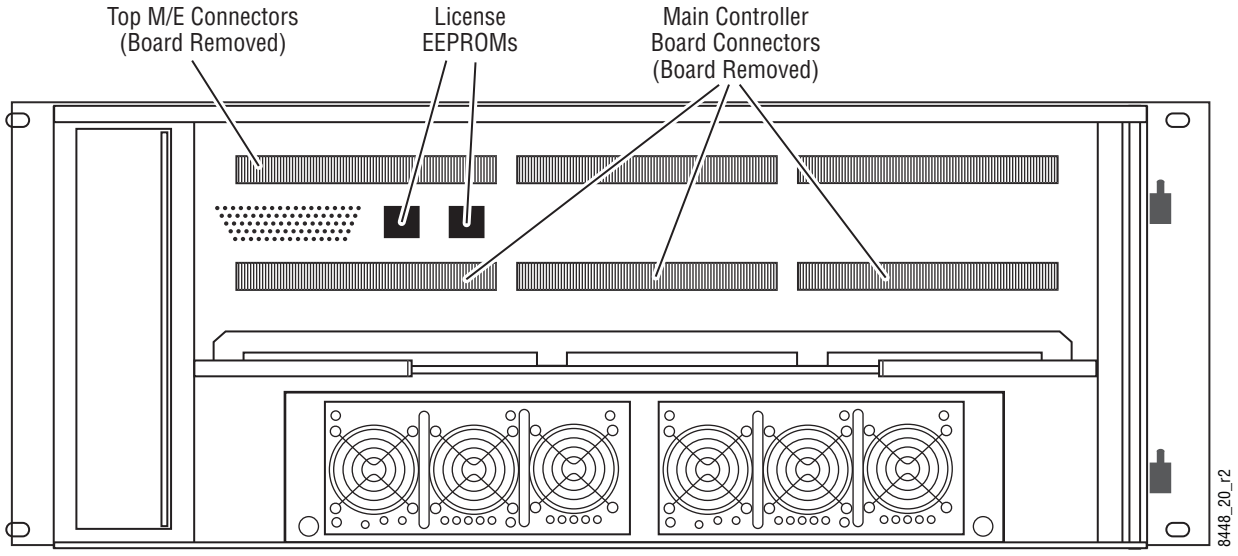
Figure 209. Kayenne Control Processor Board - Boot Mode Switch Setting



Video Processor Frame EEPROMs

Kayenne systems is equipped with two EEPROM (Electronically Erasable Programmable Read Only Memory) chips, mounted on the backplane between the top and second board positions in the 4-RU and 8-RU Frames (Figure). These chips store Video Processor Frame IP address and licensing information.

Figure 210. License EEPROMs in 4-RU Frame, Top Two Boards Removed



IP Address Information

Storing Video Processor Frame IP address information on the backplane of the Frame allows control processor board replacement without the need to enter the IP address of the Frame.

Node settings, however, are not stored on the Frame's EERPOM. After control processor board replacement you will need to go to the Node Settings Menus (**Eng Setup**, **Node Settings**) and re-enter Panel and Menu IP addresses (**Control Surfaces**), and Remote Aux information (**Remote Aux IP Network**)

License Information

License information stored on the Video Processor Frame EEPROMS determine which features are available for use. Licensing is keyed to the serial number (System ID) for the Kayenne Video Processor Frame.

Note If you have a Video Processor Frame and are replacing it with a new Frame, the new license stored in the EEPROM chips for the new Frame is issued to the serial number for the new Frame.

Lifetime of the Internal Battery

Battery life of the Kayenne Video Processor Frame internal battery is dependent on the operating time of the switcher.

Table 13. Lifetime of the Internal Battery

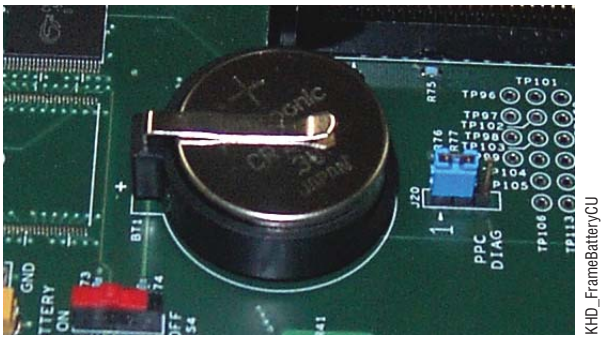
Capacity	GV #	Type
1000 mA/h	146013800	CR 2477

Video Processor Frame Battery Replacement

1. Turn off all power to the Frame before opening it.
2. Using a grounding strap, open the door to the Video Processor Frame and remove the Controller Board.

Figure 211. Video Processor Frame Controller Board with Battery Indicated

Figure 212. Video Processor Frame Controller Board Battery



3. Remove the old battery by lifting the clip holding it in place.
4. Put the new battery in place and secure the clip.
5. Re-insert the frame controller board and close the frame door.

Video Processor Frame NV Memory

Kayenne system non-volatile memory (NV Memory) contains Engineering, Suite, and User configuration data, and also has data for all the effects registers. This data is stored as files on the Video Processor Frame CF card, and is loaded on bootup. Errors in this data could cause Kayenne system problems, which may be overcome, perhaps only temporarily, by clearing the NV Memory.

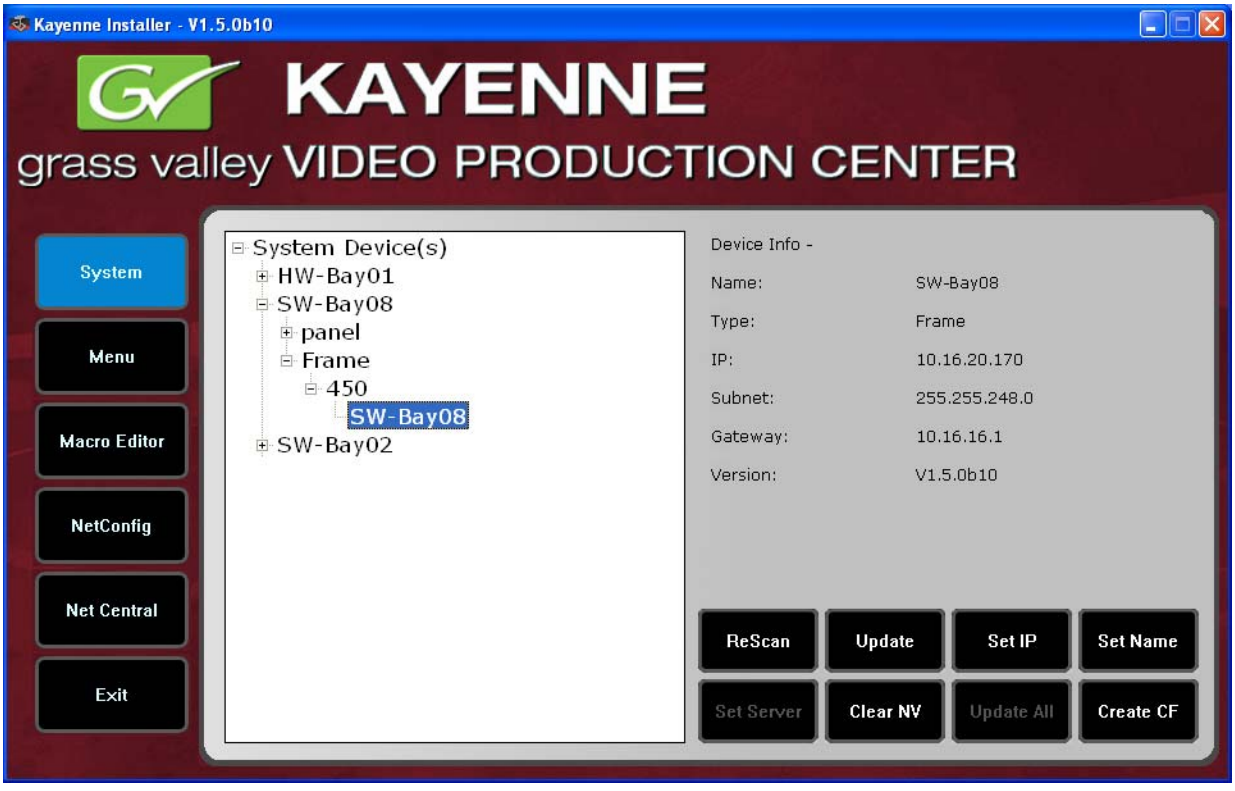
Note You should have backup copies of your configuration and EMEM files compatible with your current software version so they can be restored after the NV Memory is cleared.

Clear VP Frame NV Memory Procedure

Figure 213. Installer Icon

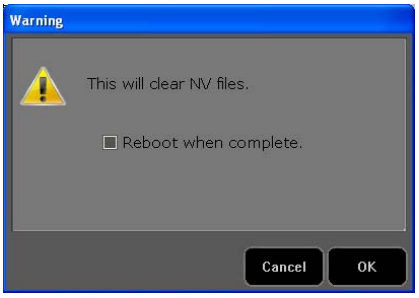
1. Launch the Kayenne Installer program via its desktop icon (Figure 213), or run the KayenneInstaller.exe file included on the Kayenne Software USB stick.
2. Navigate to the Video Processor Frame whose NV Memory you wish to clear (Figure 214).

Figure 214. DIP 1 Reset Kayenne Frame Selected



3. Click on the **Clear NV** button. The following Clear NV Files screen will appear (Figure 215).

Figure 215. Video Processor Frame



4. Leave the **Reboot when complete** box filled and click **OK**.

5. The Video Processor Frame's NV Memory will be cleared and the Frame will be rebooted.

Restore System Files

If you have a Show File with a set of standard Kayenne system settings, you can load it now to restore your system to that state. However, if you are experiencing problems, you may want to reload the files individually to help find what might be causing problems.

1. For troubleshooting, restore your backup files in the following order:
   a. Reload your backup Engineering Setup file and make sure it is correct by, for example, checking that the proper source names appear in the Source Definition menu.
   b. Reload a Suite Prefs file and a User Setups file and check that these settings are correct.
   c. Load some EMEMs and run them to check that they operate correctly.

2. If there are any problems with any of the restored files, they may have become corrupted and need to be deleted and rebuilt. If a problem file locks the system, you may need to clear NV Memory again to restore system operation, but you will know what file is responsible. Contact Grass Valley Customer Support if you need troubleshooting assistance.

Restoring Multiple Suites

If your Kayenne system is configured has multiple suites, each suite will have its own Suite Prefs file. Clearing Video Processor Frame NV Memory will both suites, so to restore the system completely you will need to reload Suite Prefs for each suite.

Control Panel NV Memory

The Kayenne Control Panel control circuitry (located in the PCU Frame) has NV Memory, which stores some Control Panel configuration information, including:

- Workplace settings (for suite and control surfaces)
- System Bar Delegation
- User Colors
- Macro Attachments
- Panel Memory

Some of these settings can be saved as configuration files (Panel Prefs, Panel Memory), or as part of a Show file. Should Control Panel software problems occur, clearing the Control Panel NV memory may help with diagnostics and recovery.

Clear Control Panel NV Memory Procedure

Follow the same procedure for clearing the Video Processor Frame NV Memory, but select the Control Panel in the hierarchy screen. After the Control Panel resets, restoring User and Panel Prefs and Panel Memory configuration files should restore the Control Panel to its previous operational state.

Restoring Multiple Control Panels

If your Kayenne system has multiple Control Panels connected to the same PCU Frame, the Clear NV process will clear settings for all the connected panels. Because separate Panel Prefs exist for each Control Panel, you will need to restore each Control Panel's configuration files individually.

PCU Frame EEPROMS

The Kayenne Panel Control Unit Frame has three EEPROMS mounted on its backplane, one for the Control Panel, and one each for the Menu Panel and Menu Panel Option.

Control Panel IP Information

The IP address for the Control Panel is stored on its EERPOM. Replacing the PCU control processor board will not change this setting. However, the IP address of the Video Processor Frame the Control Panel connects to is not saved on EEPROM. After a processor board replacement, the Video Processor Frame IP address will need to be re-entered, either using the Kayenne Installer program, or on the Control Panel using the Multi Function Module.

Menu Panel IP Information

Menu Panel IP information is not stored on the PCU EEPROMS. This information resides on each Menu Panel processor, using standard Windows OS methods. Replacing a PCU processor board, or Menu Panel option board, will require resetting all Menu Panel IP addresses. This includes the actual Menu Panel IP addresses, as well as the addresses the Menu Panel uses to communicate with the Video Processor Frame and Control Panel (DPOPs).

Control Panel System Bar Maintenance

The System Bar is only present on the Control Panel Pgm Pst Stripe. On larger Control Panels the System Bar has two main parts. The right active part is called the System Bar, and the left part is called the Extended System Bar. On 35 button Kayenne systems an additional System Bar blank panel is used.

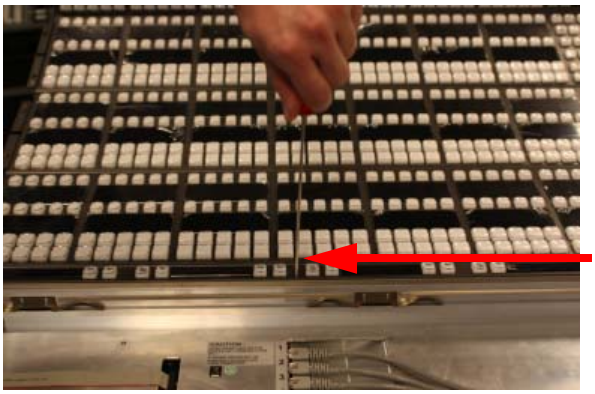
The right System Bar has a socketed electrical connector inside the tray. The left Extended System Bar uses a flat ribbon cable.

Removing the System Bar

Each active System Bar part is fixed to the tray with one hex screw recessed into the top surface of the part. A 2.5 mm hexagonal driver (Allen wrench) is used for removal. This tool is provided with the Control Panel. The blank panel is held in place with a single crosshead Phillips screw located underneath, but lacking active components it will probably never need to be removed.

1. Insert the driver and turn the hex screw counter clockwise. As the screw is turned the System Bar part will lift up because it is spring loaded (Figure 216).

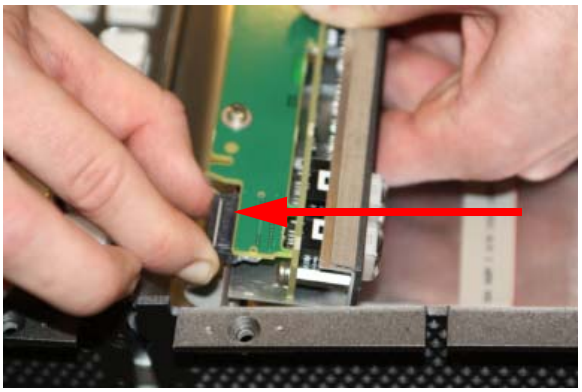
Figure 216. Unscrewing the System Bar



2. The right System Bar will disengage from its socket as it is unscrewed. Once it is completely unthreaded it can be lifted out of the tray. You may need to tilt it to a flat, horizontal position to allow clearance for removal.

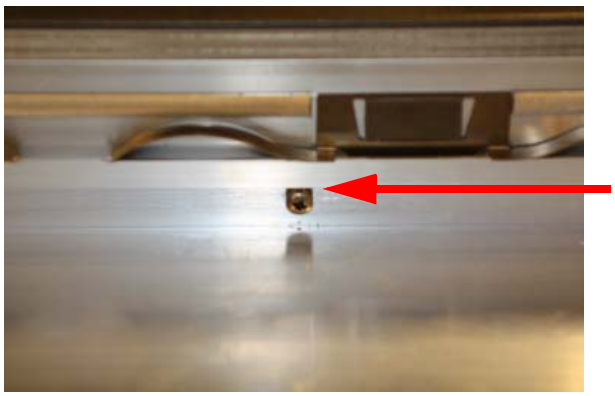
3. After unscrewing the left Extended System Bar and lifting it out of the tray, the flat cable on the left will need to be removed. Press the push clamps on the plug to connect or disconnect the plug (Figure 217).

Figure 217. Extended System Bar Cable Removal



4. Should the blank panel need to be removed, you must first take out the module below it in the Pgm Pst tray to access a crosshead Phillips screw (Figure 218).

Figure 218. System Bar Blank Panel Screw



Replacing the System Bar

1. Align the System Bar horizontally (Figure 219) and screw it into place using the provided hex tool. Do not push down on the screw. The module pulls itself into the plug while the screw is tightened.

Figure 219. Aligning the System Bar for Replacement

2. On larger Control Panels, connect the flat ribbon cable to the Extended System Bar, align it horizontally and screw it into place as above.

3. If the blank panel needs to be replaced, you will need to hold the blank panel parts in place so the screw holes are aligned before threading the screw.

Diagnostics

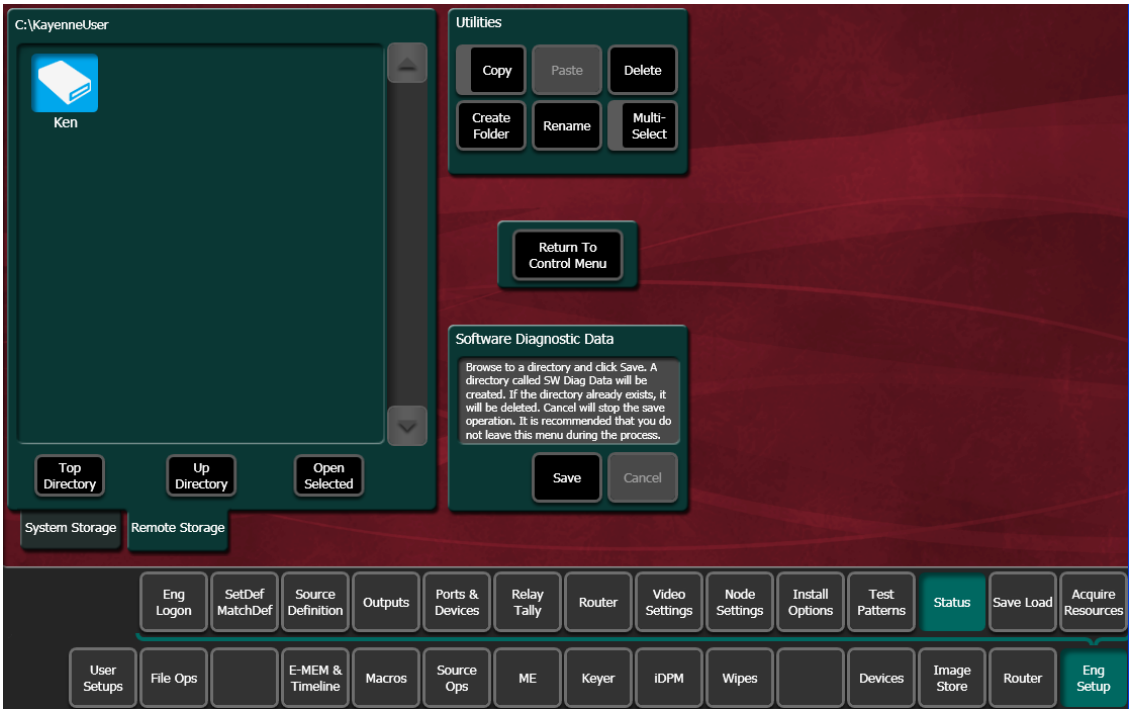
Capture Software Diagnostic Data

Software diagnostic data can be captured on a Kayenne Video Processor Frame. This information can be useful to Grass Valley engineers for troubleshooting purposes. Typically this procedure is only used when the Kayenne system is experiencing problems, and is done after a Video Processor Frame reboot.

Note During the diagnostic data capture the Kayenne system may remain functional, but system operation is not recommended at this time. Leave the Software Diagnostic Menu displayed and monitor the file save process shown at the top of the menu to allow optimum information collection.

1. Touch the **Capture Software Diagnostic Data** button located on the Status Menu (accessed via **Eng Setup**, **Status**). A file browser window will open (Figure 220).

Figure 220. Software Diagnostics Data Capture Menu



2. After selecting the destination for the files in the left pane, press the **Save** button to initiates the file copy process. A SW Diag Data directory will be created (or overwritten if on already exists) containing Kayenne system data. The time required to transfer the files varies depending on the amount of data being saved, and may take several minutes.

3. After the files have been copied, the entire contents of the directory should be compressed into a .zip archive. Grass Valley Customer Support can provide instructions on how to send this information to the Kayenne engineering team for analysis.

Control Panel Module Diagnostics

Starting with Control Panel module FPGA version DS1281.037, released with Kayenne v1.5.2 software, a boot information/diagnostic will be shown on the first character display in every display chain (min. 1 up to max. 5). This information (Table 14) is immediately visible after a power cycle and present until the application software writes the first data to the character displays on the module

Table 14. Control Panel Module Boot Display Codes

Digit				
3	**2**	**1**	**0**	Digit Zero shows the link and FPGA boot status
			*	1. Module interface link is working (normal/default). 2. FPGA was loaded over application area (normal/default).
			+	1. Module interface link is working (normal/default). 2. FPGA was loaded over factory area: application area damaged, reprogramming necessary.
				1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over application area (normal/default).
			!	1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over factory area: application area damaged, reprogramming necessary!.
		Digit 1 shows the lower number of the FPGA firmware version (DS1281.037).		
	Digit 2 shows the middle number of the FGPA firmware version (DS1281.037).			
Digit 3 shows the upper number of the FPGA firmware version (DS1281.037) (X1 always shows "!" to see the difference to the released versions).				

Example codes are shows in Table 15

Table 15. Control Panel Module Boot Display Codes Examples

Digit				
0	**3**	**7**	*****	1. Module interface link is working (normal/default). 2. FPGA was loaded over application area (normal/default). 3. FPGA firmware version is 037 (DS1281.037).
0	**3**	**7**	**+**	1. Module interface link is working (normal/default). 2. FPGA was loaded over factory area: application area damaged, reprogramming necessary. 3. FPGA firmware version is 037 (DS1281.037).
0	**3**	**7**		1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over application area (normal/default). 3. FPGA firmware version is 037 (DS1281.037).
0	**3**	**7**	**!**	1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over factory area --> application area damaged, reprogramming necessary. 3. FPGA firmware version is 038 (DS1281.038).
!	**3**	**5**	*****	1. Module interface link is working (normal/default). 2. FPGA was loaded over factory area because X1 doesn't have a application area (normal/default). 3. FPGA firmware version is X1 and 35 (DS5831.035).
!	**3**	**5**		1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over factory area because X1 doesn't have a application area (normal/default). 3. FPGA firmware version is X1 and 35 (DS5831.038).

Creating Kayenne Compact Flash Cards

The Kayenne Video Processor Frame and PCU Frame each use their own specially formatted and partitioned Compact Flash (CF) card. The Kayenne system cannot use blank CF cards directly formatted by a PC or other device.

The Kayenne Installer program is used to format, partition, and load boot files onto Kayenne system CF cards. Once prepared in this manner, the appropriate Kayenne software (VP Frame or Control Panel) will need to be installed onto each card. Kayenne system configuration information will also need to be reloaded and/or re-entered after CF card replacement to restore normal Kayenne system operation.

Compatible CF Cards

SanDisk 4 GB, UDMA, 45MB/s Compact Flash media has been tested and found compatible for use on Kayenne systems.

Note Some other CF card brands may not be usable. Specifically, Lexar CF 4 GB cards have a slightly smaller actual capacity, and so cannot be prepared using the following procedure.

Materials Required

To format a CF card you will need:

- A CF card reader/writer (USB 2.0 recommended),
- PC, or Kayenne Menu Panel equipped with a mouse and keyboard,
- Kayenne Installer program deployed onto the PC or Menu Panel, and
- Kayenne release software.

After creating new CF cards, you will need the following to restore your Kayenne system to full operation:

- Backup Kayenne system configuration files (a Show file, or a set of Eng Setups and User Setups files), and
- Node Settings information (IP addresses and names of all Kayenne system components). This may be written notes, screen shots, or a spread sheet. This information is not saved to Kayenne configuration files.

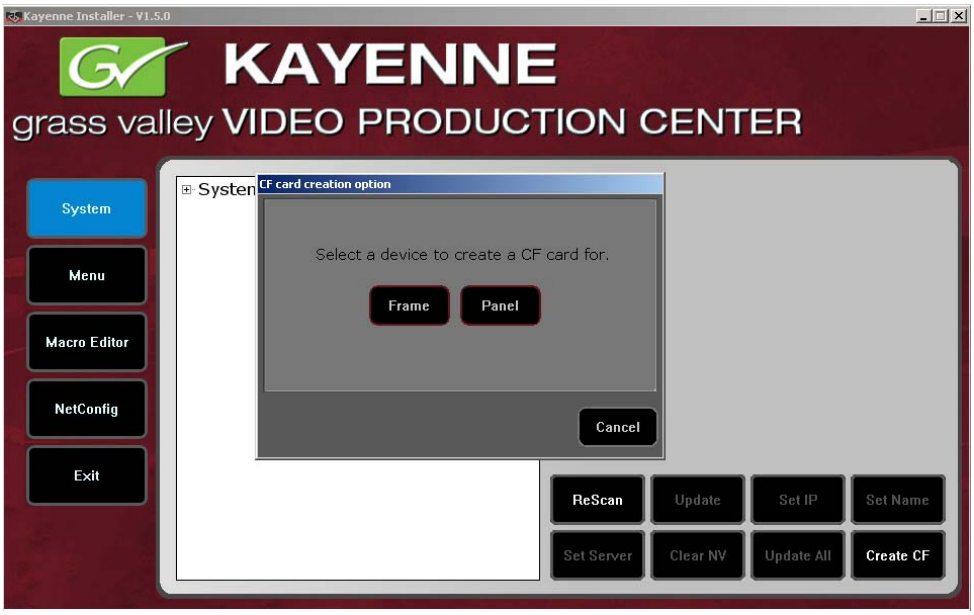
Kayenne CF Card Formatting Procedure

1. Connect the CF card reader/writer to the USB port of the PC or Menu Panel and insert the CF card into the reader/writer.

2. Launch the Kayenne Installer program.

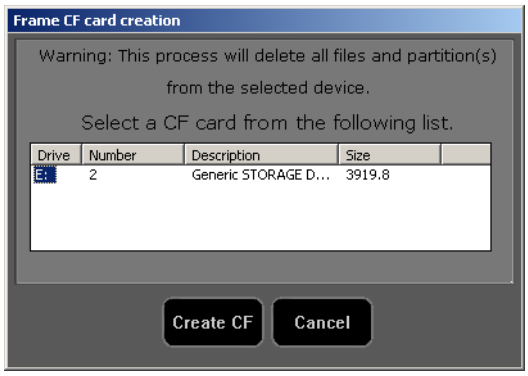
3. Select **System**, click on the **Create CF** button, and choose the CF card type, either **Frame** or **Panel** (Figure 221).

Figure 221. Kayenne Installer, Create CF Card Screen



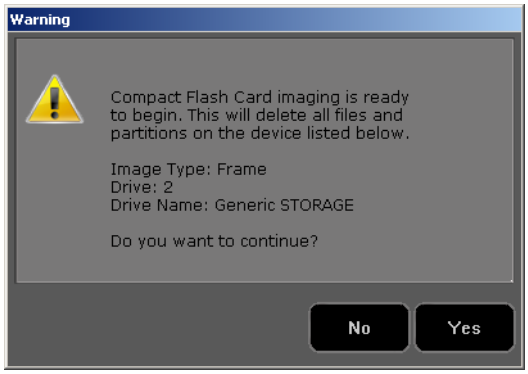
4. A DOS window will start, and then a separate window opens asking for the CF card location (D, E, F etc.) with the memory size of the device. Choose the correct device (CF card) to format. Even if only one CF card is present, you may still need to choose it on the list (Figure 222).

Figure 222. Kayenne Installer, Select CF Card Screen



5. Click **Create CF**. The following screen will appear (Figure 223)

Figure 223. Kayenne Installer, Format CF Card Screen

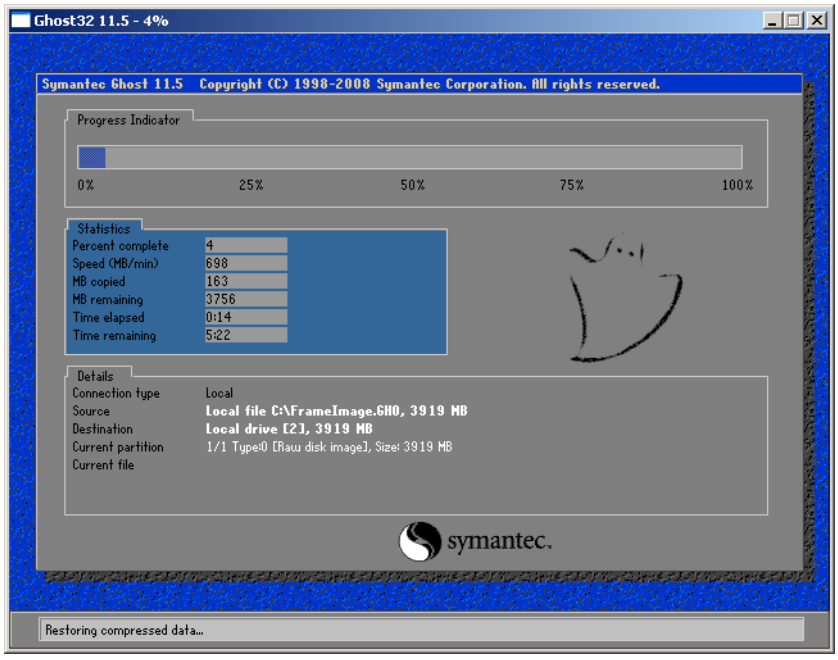


CAUTION Any existing files or partitions on the CF card will be deleted.

6. Click **Yes**. A new Ghost application screen appears that reports the progress of the formatting (Figure 224). The process can take 8 to 20 minutes to fully erase, format, test and partition the CF card.

Note For Control Panel CF cards, though the progress bar reaches 100% a couple more minutes are still required to complete the process. During this time **Configuring operating system disk layout…** is reported at the bottom of the screen.

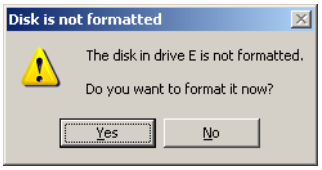
Figure 224. Kayenne Installer, Format CF Card Screen



Note Additional formatting time may be required (perhaps more than an hour) if an older USB 1.1 port or slow reader/writer device is used.

7. When finished, the Ghost window will close by itself.
   - A VP Frame CF card will now contain a set of files making it a SWUP bootable image. These files can be seen by the Windows OS.
   - The Kayenne Panel CF card now has a Linux O/S that can boot the PCU. These files are not visible to the Windows OS. If you mount the card under Windows a format prompt will appear (Figure 225). Do NOT format a Panel CF card using Windows.

Figure 225. Reformat Prompt

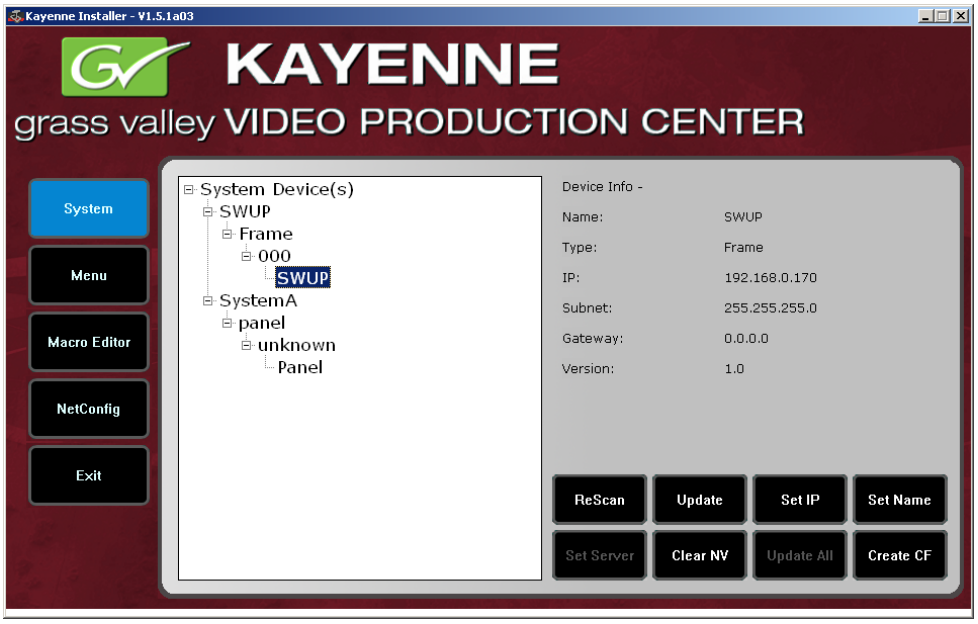


Neither CF card contains Kayenne release software yet. Proceed with the appropriate update process described below.

Updating System Software on a New VP Frame CF Card

1. Remove the CF card from the reader/writer, power down the Video Processor Frame, install the CF card in the Frame's Controller Board, and power up the Frame.
2. Follow the normal software update process, except the Frame will be listed in the hierarchy as SWUP, indicating it is available for software update (Figure 226).

Figure 226. Kayenne Installer, VP Frame SWUP



Updating System Software on a New Control Panel CF Card

1. Remove the CF card from the reader, power down the PCU, install the CF card in the PCU's Panel Processor board, and power up the PCU.

2. Follow the normal software update process, except the Control Panel will be identified as **Unknown / Panel** in the Kayenne Installer program hierarchy (Figure 226).

Restore Kayenne Configuration Files

After installing the Kayenne release software, you can now reload a Show file containing the Eng Setups and User Setups for your system, or reload these configuration files individually.

You will also need to enter the Node Settings information. Go to **Eng Setup**, **Nodes Settings**, and enter the IP address and device name information in the **Control Surfaces**, **Frame Suite Nodes & ID**, and **PCU Configuration** tabs.

Appendix A

Specifications

Table 16. Kayenne Mechanical Specifications

Component	Depth	Width	Height	Weight [a]	Rack Units
Control Panels	Curved Support Structure Orientation				
4 ME-35, with attached Local Aux Stripe, 15 m Cables	746.3 mm (29.38 in.)	1533.7 mm (60.38 in.)	559.3 mm (22.02 in.)	57.3 kg (126.2 lbs.)	n/a
3 ME-35, with Local Aux Stripe, 15 m Cables	637.1 mm (25.08 in.)	1533.7 mm (60.38 in.)	292.3 mm (11.51 in.)	44.7 kg (98.4 lbs.)	n/a
2 ME-25, with Local Aux Stripe, 15 m Cables	488.4 mm (19.23 in.)	1341.7 mm (52.82 in.)	242.3 mm (9.54 in.)	29.9 kg (65.8 lbs.)	n/a
1 ME-15,with 15 m Cables, without Local Aux Stripe	356.4 mm (14.03 in.)	758.3 mm (29.85 in.)	84.3 mm (3.32 in.)	14.5 kg (32.0 lbs.)	n/a
Local Aux Stripe	Separately Mounted, Flat Orientation				
Local Aux-35 with 15 m Cable	185.7 mm (7.31 in.)	813.7 mm (32.04 in.)	84.3 mm (3.32 in.)	6.3 kg (13.8 lbs.)	n/a
Local Aux-25 with 15 m Cable	185.7 mm (7.31 in.)	621.7 mm (24.48 in.)	84.3 mm (3.32 in.)	6.1 (13.4 lbs.)	n/a
Menu Panel					
Touch Screen with 15 m cable	91.7 mm (3.612 in.)	417.85 mm (16.45 in.)	270.10 mm (10.63 in.)	6.2 kg (13.5 lbs)	n/a
Menu Panel Support Arm	n/a	n/a	n/a	4.8 kg (10.5 lbs)	n/a
Panel Control Unit (PCU)	588.52 mm (23.17 in.)	482.60 mm (19 in.)	132.59 mm (5.22 in.)	16.1 kg (35.4 lbs)	3
Kayenne 4-RU Frame	546.10 mm (21.5 in.)	482.60 mm (19 in.)	177.80 mm (7 in.)	17.7 kg (39 lbs)	4
Kayenne 8-RU Frame	522.73 mm (20.58 in.)	482.60 mm (19 in.)	441.96 mm (17.4 in.)	30.4 kg (67 lbs)	8

[a] All weights approximate.

Table 17. Environmental

Storage temperature	-20 to 70 deg C (-4 to 158 deg F)
Operating temperature	0 to 40 deg C (32 to 104 deg F)
Relative humidity	0-95% (non-condensing)
Electromagnetic environment	E2 (according to EN55103-1, -2)

Table 18. Network Connections

Type of connection	10/100/1000 Base T
Protocol	TCP(UDP)/IP, Auto speed detection. Auto crossover cable configuration.
Cable and connectors	CAT5 UTP, RJ45 connectors;
Max. Cable Length	100m / 300ft

Note The Video Processor Frame and the PCU Frame each have an internal Ethernet switch. The VP Frame has four available external ports on its switch, two of which are to be used with each PCU (two PCUs maximum). The PCU has six available external ports on its internal switch, and one additional port dedicated for Control Panel use. When a PCU is attached to the VP Frame, five PCU ports remain available for additional network connections.

Table 19. PCU Interconnects

Control Panel - PCU Connections		
Cable and connectors	Custom 7 Pin D style	
Number Required	1 for each Control Panel Stripe, Local Aux Stripe, and Satellite Panel	
Max. Interconnect Cable Length	15 m / 50 ft. (7.5 m / 25 ft. cable length also available)	
Cable Weight	15 m / 50 ft.	1.3 kg (2.9 lbs)
	7.5 m / 25 ft.	0.7 kg (1.6 lbs.)
Touch Screen Menu Panel - PCU Connection		
Cable and connectors	Custom 17 Pin D style	
Number Required	1 for each Menu Panel (2 maximum)	
Max. Interconnect Cable Length	15m / 50ft (7.5m / 25ft cable length also available)	
Cable Weight	15 m / 50 ft.	1.6 kg (3.7 lbs)
	7.5 m / 25 ft.	0.9 kg (2.0 lbs.)

Table 20. Power

4-RU Video Processor Frame	
Line voltage	100V-240V AC +/-10% autorange, power factor corrected. Automatic line-voltage sensing for 120V and 240V sources.
Line frequency	50/60Hz +/- 5%
Power consumption	max. 400W
Leakage current	< 2.5 mA
8-RU Video Processor Frame	
Line voltage	100V-240V AC +/-10% autorange, power factor corrected. Automatic line-voltage sensing for 120V and 240V sources.
Line frequency	50/60Hz +/- 5%
Power consumption	max. 1000W
Leakage current	< 2.5 mA
Panel Control Unit (required for Control Panel and Touch Screen Menu Panel Operation)	
Line voltage	100V-240V AC +/-10% autorange, power factor corrected. Automatic line-voltage sensing for 120V and 240V sources.
Line frequency	50/60Hz +/- 5%
Power consumption	max. 500W
Leakage current	< 2.5 mA

Table 21. Serial Digital Video Inputs

Format	ITU-R656, SMPTE 259M, 270 Mbit/s. SMPTE 292M, 1.485 Gbit/s
Number of Inputs	Frame w/ 1 ME Board: 24
	Frame w/ 2 ME Boards: 48
	Frame w/ 3 ME Boards: 72
	Frame w/ 4 ME Boards: 96
Return loss	> 15 db, 5 MHz to 1.5 GHz
Type of Connector	75 ohm BNC (SMPTE 259M)
Interface	HD Video Formats SMPTE 292M-1998
	SD Video Formats SMPTE 259M-1997
Nominal Amplitude	800mV peak-to-peak terminated
Channel Coding	conforms to SMPTE 259M, SMPTE 292M
Ancillary Data	Blanked or passed (user selectable)
Embedded audio	Blanked or passed (user selectable)
EDH	Blanked
Input Impedance	75 ohm
Max cable length	HD Video 100 meters using Belden 1694A type cable
	SD Video 300 meters using Belden 1694A type cable

Table 22. Serial Digital Video Outputs

Format	ITU-R656, SMPTE 259M, 270 Mbit/s. SMPTE 292M, 1.485 Gbit/s
Number of Outputs	Frame w/ 1 ME Board: 12
	Frame w/ 2 ME Boards: 24
	Frame w/ 3 ME Boards: 36
	Frame w/ 4 ME Boards: 48
Return loss	> 15 db, 5 MHz to 1.5 GHz
Type of Connector	75 ohm BNC (SMPTE 259M)
Interface	HD Video Formats SMPTE 292M-1998
	SD Video Formats SMPTE 259M-1997
Nominal Amplitude	800 mv peak-to-peak across 75 ohm +/- 10%
Rise & Fall Times	400 to 1400picoseconds 75 ohm termination between 20% and 80% amplitude
Jitter	ITU R 601/656
Output Impedance	75 ohm
DC Offset	< 50mV with 75 ohm termination

Table 23. Analog Reference Input

Video Standard	For HD Video: Tri-level Sync, Analog equivalent to the standard being used
	For SD Video: Color Black, Analog equivalent to the standard being used
Return loss	> 40dB, up to 5 MHz
Connectors	2 each BNC loop through for both HD and SD inputs
Impedance	75 ohm external

Table 24. Kayenne Video Standards

HD Mode		SD Mode	
1080i 29.97/30	SMPTE 274M Table 4, 5	525i 29.97	SMPTE 259M
1080i 25	SMPTE 274M Table 6	625i 25	SMPTE 259M
1080sF 23.97/24/25/29.97/30	SMPTE RP211 Table 12-16		
720p 50/59.94/60	SMPTE 296 Table 1-3		

Table 25. Kayenne System Timing, 4.5 ME System

System Timing	HD Mode					SD Mode	
	720p/ 50	720p/ 59.94/60	1080i & sf/ 25	1080i & sf/ 29.97/30	1080sf/ 23.97/24	525i/ 29.97	625i/ 25
Nominal Switcher Delay	21.96 µs	19.79 µs	26.46 µs	23.50 µs	27.20 µs	61.46 µs	61.68 µs
Serial Input Autotiming	+/- 4.71 µs	+/- 2.45 µs	+/- 9.12 µs	+/- 6.16 µs	+/- 9.86 µs	+/- 2.10 µs	+/- 2.32 µs
Minimum Switcher Delay	17.34 µs	17.34 µs	17.34 µs	17.34 µs	17.34 µs	59.36 µs	59.36 µs
~ Maximum Switcher Delay	26.67 µs	22.24 µs	35.56 µs	29.66 µs	37.04 µs	63.56 µs	64.00 µs

Appendix B

Field Replaceable Units

This appendix provides lists of the Field Replaceable Units (FRU) and Critical Spares for the Kayenne Video Production Center.

Note The lists given here are for general guidelines only and are subject to change at any time. They do not reflect current pricing or availability information.

The modules and assemblies for the Kayenne system that can be replaced in the field and ordered from Grass Valley Customer Support are listed in Table 26.

Table 26. FRU List and Replacement Notes and References

Name	Part Number	Replacement Notes and References
Kayenne Video Processor Frames		
8-RU Frame Assembly	761024801	Includes Backplane, Chassis, Fan Assembly, Air Filter, Power Supply Module (2).
4-RU Frame Assembly	761000501	Includes Backplane, Chassis, Fan Assembly, Air Filter, Power Supply Module (1).
8RU Backplane Subassembly	751015001	Includes Backplane and metal, ready to install.
4RU Backplane Subassembly	751013701	Includes Backplane and metal, ready to install.
8-RU Front Door	86232370	
4-RU Front Door	86232360	
Video Processor Frame Power Supply Module	620009600	
Control Processor Board	771006001	01=no Image Store, 41=one 4G, 81= two 4Gs
Mix/Effects Board	771039000	
Chassis Fan Assembly (8-RU)	751014901	
Chassis Fan Assembly (4-RU)	751006300	
Air Filter (8-RU)	378209400	
Air Filter (4-RU)	378209000	
4 GB RAM DIMM	156973600	Used with Image Store on Control Processor Board.
512 MB RAM DIMM	156972700	Control buffer on Control Processor Board.
Battery	146013800	Panasonic CR2477

Table 26. FRU List and Replacement Notes and References - (continued)

Name	Part Number	Replacement Notes and References
Kayenne Panel Control Unit (PCU)		
Panel Control Unit (standard)	761037800	Includes PCU Chassis and Backplane only.
Panel Control Unit Subassembly	751027900	Includes Backplane and metal, ready to install.
PCU Power Supply Module	86200400	
Panel/Menu Processor Board	771041810	Includes programmed 4G Kayenne (KL) CF Card.
Second Menu Processor Board	771041900	
PCU Chassis Fan Assembly	751028000	
PCU Fan Filter	378209500	
PCU I/O Board	771041400	Includes back plate.
Kayenne Control Panel		
KAYN-PNL-TRM - Transition Module	85553050	
Kayenne Transition Keycap Set	85570600	
KAYN-PNL-LEM - Local E-MEM Module	85553240	
Kayenne Local E-MEM Keycap Set	85570630	
KAYN-PNL-MEM - Master E-MEM Module	85553810	
Kayenne Master E-MEM Keycap Set	85570720	
KAYN-PNL-MFM - Multi-Function Module	85553430	(Keycaps included)
KAYN-PNL-SRC-35 - Source Select Module	85552910	Modules available in 35, 25, and 15 button widths. 15 button width for 1-ME Control Panel only.
KAYN-PNL-SRC-25 - Source Select Module	85552620	
KAYN-PNL-SRC-15 - Source Select Module	85552380	
Kayenne Source Select Keycap Set	85570300	
KAYN-PNL-AUX-35 - Local Aux Module	85552970	Available in 35 and 25 button widths.
KAYN-PNL-AUX-25 - Local Aux Module	85552790	
Kayenne Local Aux Keycap Set	85570500	
KAYN-PNL-SYSTEM BAR-4 DEVICE	85552040	Used with SYSTEM BAR-2 DEVICE on 25 or 35 Source Control Panels. Not used on 1-ME Control Panel. (Keycaps included)
KAYN-PNL-SYSTEM BAR-2 DEVICE	85552020	Used on 25, 35, and 1-ME Control Panels. (Keycaps included)
KAYN-PNL-DCM - Device Control Module,	85554000	Available as an option for 3 and 4-ME Control Panels, or as a Satellite Device Control Module.
4-ME Panel Support Structure	85573800	Supports either Curved or Flat configurations. Hex assembly tools included.
3-ME Panel Support Structure	85573820	
2-ME Panel Support Structure	85573840	
1-ME Panel Support Structure	85573860	
Distribution Board	85554640	
ME Stripe-PCU Cable - 7.5 m (25 ft.)	85572390	
ME Stripe-PCU Cable - 15 m (50 ft.)	85572400	
Dimple Keycaps - Small	86205210	quantity 5, 12mm AT3086, NKK
Dimple Keycaps - Large	86205220	quantity 10, 15mm, AT3087, NKK
Source Select 35 Tray Assembly (empty)	85572570	Includes distribution board, internal cables, etc. No modules.
Source Select 25 Tray Assembly (empty)	85572560	
Source Select 15 Tray Assembly (empty)	85572550	

Table 26. FRU List and Replacement Notes and References - (continued)

Name	Part Number	Replacement Notes and References
Aux 35 Tray Assembly (empty)	85572590	Includes distribution board, internal cables, etc. No modules.
Aux 25 Tray Assembly (empty)	85572580	
System Bar 35 Tray Assembly (empty)	85572650	
System Bar 25 Tray Assembly (empty)	85572640	
System Bar 15 Tray Assembly (empty)	85572630	
Internal Tray Cables (connect distribution board to modules)	85572430	500mm
	85572440	750mm
	85572450	1000mm
	85572460	1250mm
	85572470	1500mm
Menu Panel		
Menu Panel Assembly	85555340	
Menu Panel- PCU Cable - 7.5 m (25 ft.)	85572370	
Menu Panel- PCU Cable - 15 m (50 ft.)	85572380	
Satellite Panels		
1 Module width, 1 Tray (empty)	85574000	Holds one larger module (286mm, 11.25 in) or two smaller modules (143mm, 5.6 in). Includes trim, internal cables. No modules included.
1 Module width, 2 Trays (empty)	85574200	Holds two larger modules in two Trays. Larger and smaller module sizes supported. Includes trim, internal cables. No modules included.
Remote Aux Panels		
32-Crosspoint Remote Aux Panel (1RU)	761000300	KAL32AUX1
32-Crosspoint Remote Aux Panel (2RU)	761000400	KAL32AUX2

Table 26. FRU List and Replacement Notes and References - (continued)

Name	Part Number	Replacement Notes and References
Software		
USB Stick 2G	86211560	Blank
	86211560	Kayenne Menu Panel Hard Drive image backup and restore. (Labeled with s/n of PCU Frame.)
Compact Flash Card 4G	86207620	Blank
	157031500	With Kayenne Video Processor Frame Software installed.
	163843800	With Kayenne Control Panel Software installed (for PCU).
Customer Documentation		
Kayenne Documentation CD	0718692XX	Complete Electronic Kayenne Documentation Set (except IPG)
Kayenne Release Notes	0718687XX	
Kayenne Release Notes Addendum	0718688XX	
Kayenne User Manual	0718691XX	
Kayenne Installation & Service Manual	0718689XX	
Kayenne Installation Planning Guide (IPG)	0718690XX	Pre-shipment information for site preparation.
Switcher Protocols Manual	0718063XX	Intended for third party developers and in-house software engineers.

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