KAYENNE/KARRERA/ GV KORONA

K-FRAME

Version 17.3.0

Release Notes

13-06166-010-AE

2024-07-18

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K-Frame Version 17.3 Release Notes

About this Manual

This document describes the new features and other information specific to the K-FrameVideo Production Center, Version 17.3.0 switcher software for the Kayenne, Karrera, and GV Korona systems.

For More Information

For information about installing, configuring, and operating K-Frame systems, see the K-Frame Video Production Center Documentation Libraries found on the Grass Valley website at grassvalley.com and on the USB thumb drive provided with your system.

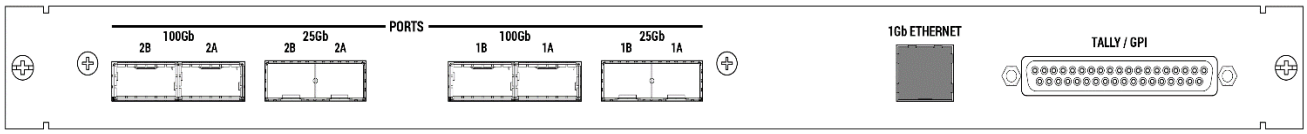
IMPORTANT: V17.3.0 is only supported by the GV K-Frame XP for Advanced IP boards and GV K-Frame X (Video Production Center) general Software.

Advanced IP boards are not supported in the K-Frame X (Video Production Center) however the general SW bug fixes in V17.3.0 are.

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

New in this Release

New Advanced IP board 90-06173-000 (K-FRM-IO-FULL-AD-I)



100GbE QSFP Support

Supports 4 100GbE QSFP's K-FRM-IO-QSFP-100G.

25GbE QSFP Support

Supports 4 25GbE SFP's K-FRM-IO-SFP10-25G configured in 25G mode.

1Gb Ethernet Port (covered) for GV Maintenance Only

This port is covered with a fitted dust cap and is only intended to be used internally by GV.

Supports GPI/Relay Tally Interface GPI/Relay Tally Interface

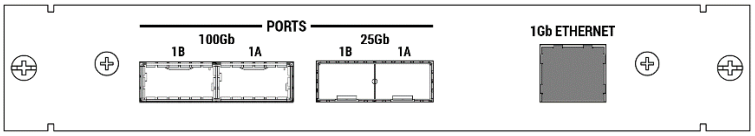
The GPI (General Purpose Interface) and relay tally interface provides a means to transfer commands to and from the switcher to external devices. A one wire per function parallel hardware relay mechanism is used. The nominal contact rating specification for each relay is 1A, 60 V.

GPI and Relay Tally Connections

Each Video Input/Output module has a 37 pin female sub-miniature D connector on the rear of the chassis, available for GPI and relay tally. Each connector has 4 GPI Inputs, 4 GPI Outputs, and 16 Relay Tally Outputs. Relays are in groups of four with a common ground.

The output relays are the same hardware but the GPI is being driven by the GPI output software and the relay tally is driven by the Relay Tally system software. Relay tally connections can be used to trigger GPIs on external devices

New Advanced IP board 90-06173-010 (K-FRM-IO-AD-I)



100GbE QSFP Support

Supports 2 100GbE QSFP's K-FRM-IO-QSFP-100G.

25GbE QSFP Support

Supports 2 25GbE SFP's K-FRM-IO-SFP10-25G configured in 25G mode.

1Gb Ethernet Port (covered) for GV Maintenance Only

This port is covered with a fitted dust cap and is only intended to be used internally by GV.

About Network Configuration

Grass Valley recommends putting Switcher systems on an isolated internal network with direct connections from the Control Panels and menu application to the Video Processor's internal Ethernet switch.

CAUTION: Grass Valley does *not* recommend putting Switcher systems on a domain which could expose the control LAN to a WAN or the Internet.

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 switcher system uses Ethernet switches built into the Video Processor Frame. 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 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 GV switcher 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.

Default IP Addresses On Isolated Network

Each system is shipped with default IP addresses. Grass Valley has chosen these default IP addresses to make configuration easy. GV switcher 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 GV K-Frame XP switcher Ethernet LAN to your facility Ethernet backbone, install additional system components, or have multiple switcher systems on the same network cabling. For example, if more than one system resides on the same network, the IP address of each additional device must be changed before it is connected to the network.

To enable communication between the GV switcher and other facility devices, you will need to change the system default network addresses to match the facility address, or place a router between the GV switcher 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 GV switcher system to an existing network or making any IP address changes. The IP addresses (including any subnet mask) of all the GV switcher devices on the network must be known before any changes are made.

About NMOS AMWA IS-04 and IS-05

The GV K-Frame XP IP I/O systems support NMOS (Networked Media Open Specifications) AMWA (Advanced Media Workflow Association) IS-04 Discovery and Registration using in- band mDNS (Multicast DNS) and IS-05 Connection Management.

IS-04

IS-04 allows control and monitoring applications to find the resources on a network, including *Nodes*, *Devices*, *Senders*, *Receivers*, and *Flows*.

The IP I/O board is discoverable and registered as a *Node* by its UUID number. The node registers each of its sub-resources:

- *Receivers*—SFP Inputs,
- *Senders*—SFP Outputs, and
- *Flows*—IP streams,

and begins to post regular heartbeats between the node and the registry. Upon connection to a network, nodes discover the registry as advertised with mDNS.

IS-05

NMOS IS-05 is an API presented by Devices that can control the switcher's SFP IGMP addresses.

MENU

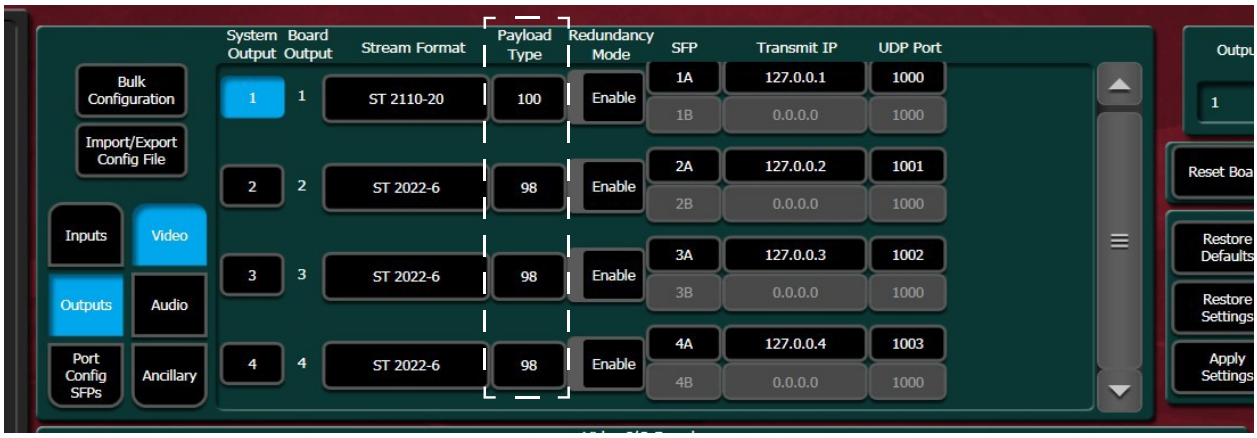
The switcher system default is *enabled*. The feature can be enabled/disabled by selecting the **IS-04 & IS-05 Enable** button in the Node Settings, NMOS Configuration menu tab.

> Note: If the Frame cannot locate the node using the provided IP Address and/or IP Port, it will revert to mDNS.

NMOS IS-04/IS-05 how to Change Receivers/Senders

NMOS-IS 04/IS-05 does not update the Payload Type in the Advanced IP I/O Config menu, however receivers will be adjusted internally to recognize the correct format.

Outputs are *not* adjusted internally so if the there is a Payload Type mismatch between the switcher sender and the downstream receiver, the Payload Type must be changed in the Eng Setup, Video I/O, IP I/O Config menu.



About the NMOS Registry and Group Hint Prefix

It is *not* recommended to use the Group Hint Prefix unless multiple Grass Valley Video Processor Frames are part of a single topology.

CAUTION: Setting the Group Hint Prefix is a pre-configuration requirement that must be done prior to adding switcher resources to the topology.

The prefix will be published as a Group Hint tag and can be used by a router control system to group video, audio, and ancillary streams for inputs and outputs.

Character Limitation

The Group Hint Prefix is limited to five characters to ensure the generated device mnemonic is less than eight characters which makes them router control system compliant.

Configure the NMOS Registry and Group Hint Prefix

IMPORTANT: These are system level configurations and must be performed by qualified service personnel only.

1 In the Eng Setup, Node Settings, NMOS Configuration menu, select the **Group Hint Prefix** data pad.

2 Read, and if you agree to the Warning, select **OK**.

3 Enter a prefix in the pop-up keyboard and select **Enter**.

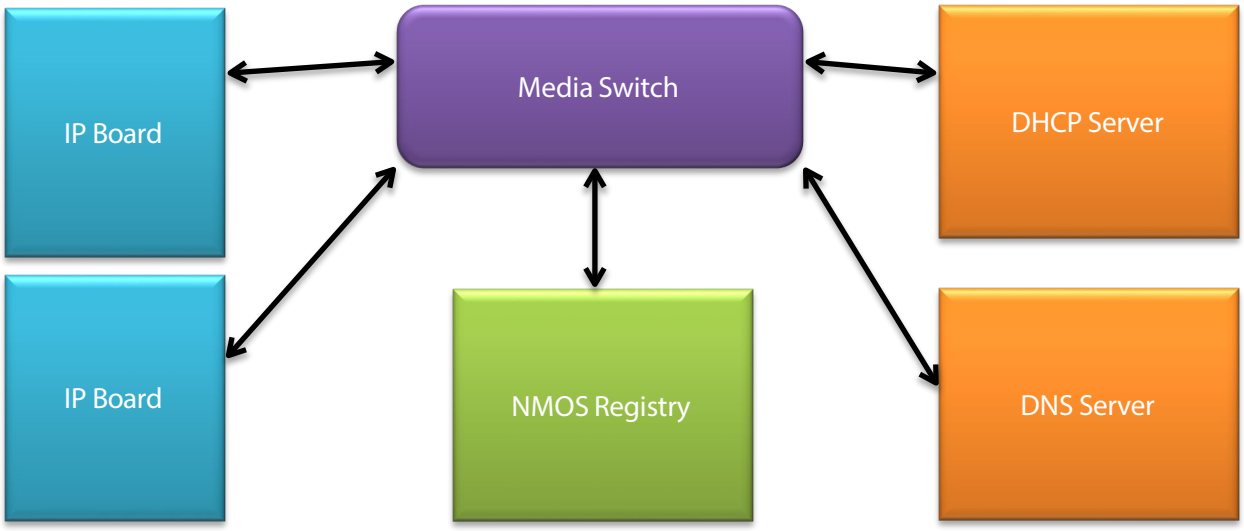
Unicast DNS-SD

Unicast DNS-SD and mDNS are supported. By default NMOS discovery will attempt both mDNS and Unicast-SD to discover a registry on the network.

Entering an IP address other than 0.0.0.0 for the Global Registry in the menu Eng Setup > Node Settings >NMOS Configuration > Global Registry IP Address and Port, will disable mDNS and Unicast-SD and the Frame will only attempt to connect to the given IP address. Redundancy not possible in this mode.

Requirements for In-band Unicast-SD

1. DHCP Server on the Media Network
2. DNS on the Media Network
3. Configuration file for the DHCP server which provides domain-name-servers AND domain-name
4. DNS configuration file which contains the NMOS services (_nmos-register, _nmos-query, …) which refer to the NMOS registry(s)
5. IP Board needs to be visible to the DHCP Server and DNS (ping test)



Unicast-SD sequence of events

1. IP Board issues a DHCP Request for option 6 (DNS IP) and option 15 (Domain Name)
2. DHCP Server responds with a DHCP Inform providing info for option 6 and 15
3. IP Board issues a DHCP ACK
4. IP Board takes the given DNS IP provided by the DHCP Server and issues a DNS query for the various NMOS services (_nmos-register, _nmos-query)
5. DNS responds with the NMOS services information
6. IP Board registers with the highest priority NMOS Registry provided by the DNS

Example DHCP Configuration file for Linux dhcpd

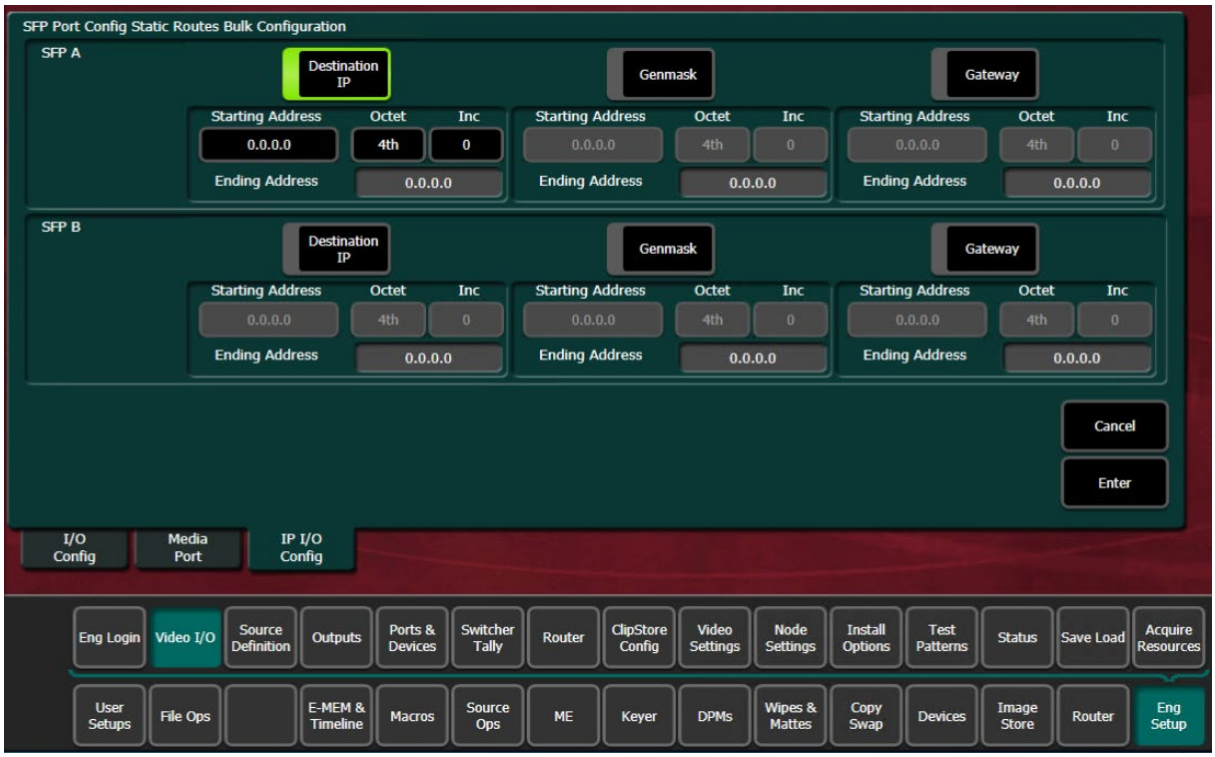
```
authoritative;
subnet 192.168.10.0 netmask 255.255.255.0 {
range 192.168.10.40 192.168.10.250;
option domain-name-servers 192.168.10.10;
option domain-name "gvswitcherlab.com";
option host-name "GVC.gvswitcherlab.com";
option subnet-mask 255.255.255.0;
option routers 192.168.10.255;
option broadcast-address 192.168.10.255;
default-lease-time 600;
max-lease-time 7200;
option dhcp-lease-time 3600;
option dhcp-rebinding-time 3600;
option dhcp-renewal-time 3600;
}
```

Required fields

- `domain-name-servers`
- `domain-name`

Static Routes for the Primary and Secondary Control Systems

Static Route capabilities allow the IP I/O Boards to communicate with NMOS control systems such as GV Orbit (GVO). The static routes are configured via the Menu.
Eng Setup > Video I/O > IP I/O Config > Port Config SFPs > Static Routes



Advanced IP I/O Configuration Menus

IP/IO Config Menu

SFPs are configured in the Eng Setup, Video I/O, IP I/O Config menu.

GV K-Frame XP, Advanced IP I/O Config

Button descriptions are added to the Port Config SFPs Menu Buttons and Data Pads table.

Port Config SFPs Menu Buttons and Data Pads

Menu	Button/Label	Description
Port Config SFPs	SFP Speed	Select configured dual-use SFP speed of selected board: 10GbE or 25GbE
	Streams/SFP	<Not Used Advanced IP>
	System SFP	Displays the SFP selection/search result
	SFP (label)	Physical SFP, the "B" SFP is used for I/O Redundancy Mode
	Local IP	IP Address for the Frame to transmit/receive external device data over the network
	Subnet mask	Facility Subnet Mask Address
	Gateway	Facility Gateway Address

The IP Config menu control is delegated with the following port type buttons:

- Inputs,
- Outputs, and
- Port Config SFPs.

IMPORTANT: Perform the Port Config SFP configuration first, in the IP I/O Config menu

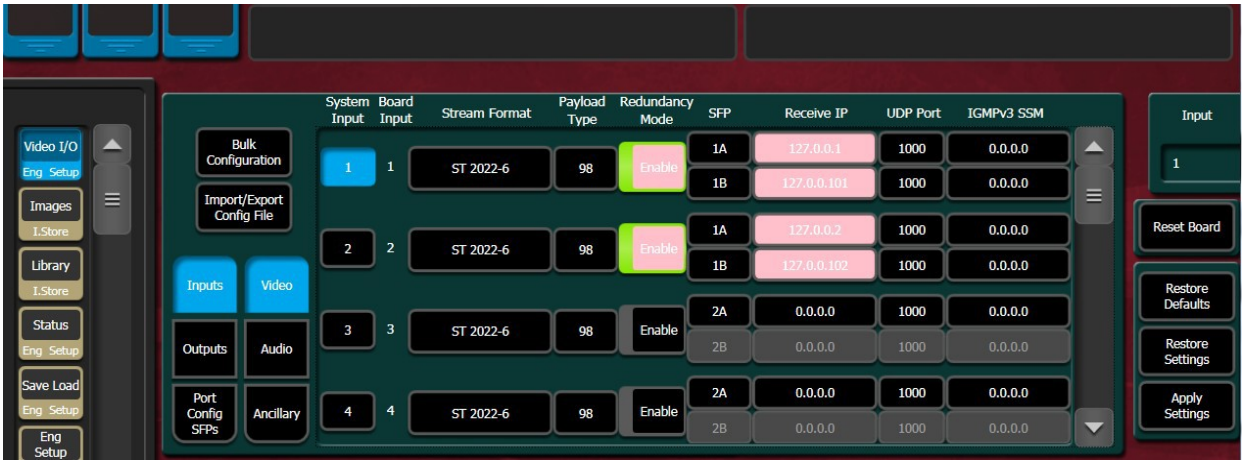
Video I/O Board and Mod I/O Board Configuration Data

Board selection button enhancements apply to I/O Config and IP/IO Config menu tabs.

Board Selection	Board configuration settings:

	• First system input on the board—Top left
	• First system output on the board—Bottom left
	• Board slot in Frame—Center
	• Board type—Bottom right
	  • SDI (Serial Digital Interface)
	  • IP (Internet Protocol)
	  • FC (Format Conversion)
	  • GB (Gearbox)
	  • --- No board

Multiple parameters can be set, then applied. New parameter settings are highlighted in pink, indicating the menu settings for each input have not been sent to the Frame. Once the Apply Settings button is selected, the settings are sent to the Frame and the new settings are displayed in the menu. Buttons and data pads return to white text over a black background.



Common Configuration Buttons

Some Advanced IP I/O Config menu buttons are common to all menu delegations (Inputs, Outputs, and Port Config QSFP/SFPs).

Advanced IP I/O Common Config Menu Buttons

Button	Description
Bulk Configuration	Bulk Configuration menu
Import/Export Config File	Import/Exports IP Config File menu
Inputs	Inputs menu
Outputs	Outputs menu
Port Config SFPs	Port Config SFPs menu
Video	Video stream delegation
Audio	Audio stream delegation (AES Audio)
Ancillary	Ancillary stream delegation (Closed captioning, subtitles, etc.)
Restore Defaults	Restores IP system defaults (Restores the menu, does not apply settings to the Frame)
Restore Settings	Restores the IP settings last applied (Restores the menu, does not apply settings to the Frame)
Apply Settings	Applies new settings made to the menu parameters, e.g. streaming format, IP Addresses, UDP Port numbers, etc.
Video I/O Board	Select the physical Video I/O Board
Mod I/O Board	Select the physical Mod I/O

Port Config System QSFP/SFPs Configuration Menu Buttons

In the Eng Setup, IP I/O Config menu with the Port Config QSFP/SFPs delegation button selected.

.

Port Config SFPs Menu Buttons and Data Pads

Menu	Button/Label	Description
Port Config SFPs	SFP Speed	Select to choose • 100 GbE, • 25 GbE
	Streams/SFP	<Note Used>
	System SFP	Displays the SFP selection/search result
	SFP (label)	Physical SFP, the "B" SFP is used for I/O Redundancy Mode
	Local IP	IP Address for the Frame to transmit/receive external device data over the network
	Subnet mask	Facility Subnet Mask Address
	Gateway	Facility Gateway Address

System Input Configuration Buttons

In the Eng Setup, IP I/O Config menu with the Inputs delegation button selected.

Advanced IP I/O Input Menu Buttons and Data Pads

Button/Data pad/Label	Description
System Input	GV K-Frame XP System Inputs with Engineering IDs:
Board Input	Input number on the physical board
Stream Format	Selects the type of IP Stream Format Video Standard (default is ST 2110-20): • Auto Detect (future release) • ST 2110-20
Payload Type	Set the RTP (Real-time Transport Protocol) Payload Type
Enable	Enable/Disable Redundancy Mode
SFP	Upcoming feature for SFP selection (currently a fixed value)
Receive IP	IP Address for the input
UDP Port	UDP Port number to receive data (default 1000)
IGMPv3 SSM	IGMPv3 SSM IP Address (default 0.0.0.0)
Input	Scroll through or directly select an input (values reflected in Video I/O and Mod I/O Board buttons)

System Output Configuration Buttons

In the Eng Setup, IP I/O Config menu with the Outputs delegation button selected.

Output Menu Buttons and Data Pads

Button/Data pad/Label	Description
System Output	GV K-Frame XP
Board Output	Output number on the physical board
Stream Format	Selects the type of IP Stream Format Video Standard (default is ST 2110-20): • ST 2110-20
Payload Type	Set the RTP (Real-time Transport Protocol) Payload Type
Enable	Enable/Disable Redundancy Mode
Transmit IP	Output video to the Transmit IP (default 0.0.0.0)
UDP Port	UDP Port number to transmit data
Output	Scroll through or directly select an output (values reflected in Video I/O and Mod I/O Board buttons)

About Advanced IP Single Stream Full Frame UHD-4K

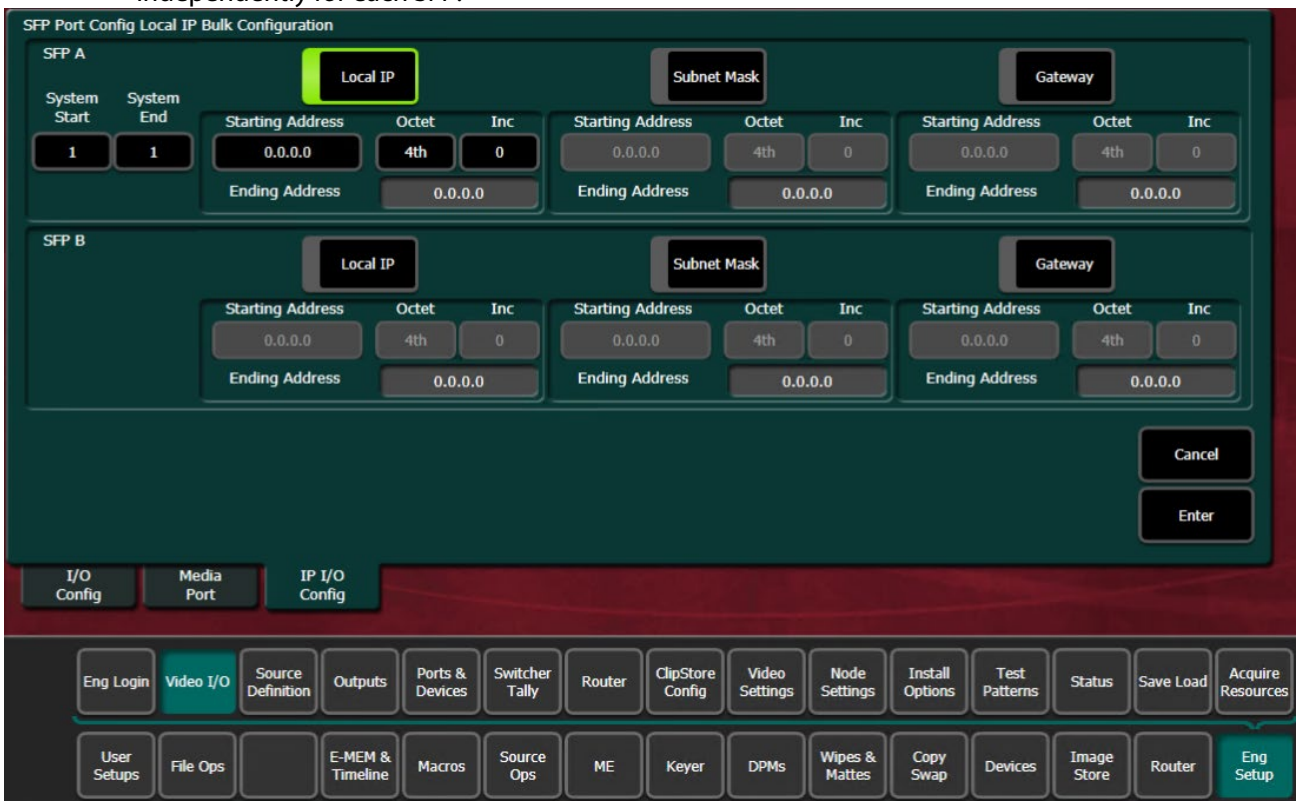
25G supports 1080p and down, and is always 8x4.
100G supports 2160P and down, and is always 2x1.
Bulk configuration is also supported.

Advanced I/O IP Config Bulk Configuration

Accessed by selecting the Bulk Configuration button in the IP I/O Config menu, you can configure multiple System Input, Output, or QSFP/SFP parameters with the Bulk Configuration menus. Also, bulk configuration can be done by exporting, editing, and importing an Excel spreadsheet offline, using the Import/Export Config File button.

Advanced IP I/O Config Bulk Configuration Menu

The Input, Output, and Port Config SFP Video Bulk Configuration menus are divided into the SFP A and SFP B menu panes. The SFP B pane is for the Redundancy Mode and appears below the System Start and System End values entered for SFP A. Other parameters can be set and enabled/disabled independently for each SFP.



100G QSFP and 25GbE SFP speeds and stream options are configurable.

Input Video/Audio/Ancillary Bulk Configuration Menu Buttons

Button Group	Button/Data pad	Description
SFP A/B System SFP Range	System Start	First System SFP in the range
	System End	Last System SFP in the range
SFP A: Receive IP	Receive IP	Include/exclude the Receive IP settings
	Starting Address	IP Address for first SFP Input in the range
	Octet	Select the 1st, 2nd, 3rd, or 4th octet (default 4th) to increment the IP Address from the first IP Address in the range
	Inc	Enter the number to increment/decrement the IP Addresses in the range
SFP A: UDP Port	UDP Port	Include/exclude the UDP Port settings
	Port	Enter the UDP Port number for the range (default 1000)
	Inc	Enter the number to increment/decrement the UDP Port number in the range (default 0)

Input Video/Audio/Ancillary Bulk Configuration Menu Buttons

Button Group	Button/Data pad	Description
SFP A: IGMPv3 SSM	IGMPv3 SSM	Include/exclude the IGMPv3 SSM (Source-Specific Multicast) settings (default 0.0.0.0)
	Starting Address	First IGMPv3 SSM IP Address on the SFP Input in the range (default 0.0.0.0)
	Octet	Select the 1st, 2nd, 3rd, or 4th octet (default 4th) to increment the IGMPv3 SSM IP Address from the first in the range
	Inc	Enter the number to increment/decrement the IGMPv3 SSM IP Addresses in the range (default 1)
SFP B: Redundancy Mode	Redundancy Mode	Include/exclude the Redundancy Mode settings
	Enable	Enable/Disable Redundancy Mode (default is Disabled)
SFP B: Receive IP, UDP Port, IGMPv3 SSM	All	Same as SFP A above
Stream Format	Stream Format	Include/exclude the Stream Format settings
	ST 2110-20	Video stream
Enter	Enter	Apply bulk configuration
Cancel	Cancel	Cancel settings, return to IP I/O Config menu

Output Video/Audio/Ancillary Bulk Configuration Menu Buttons

Button Group	Button/Data pad	Description
SFP A/B System SFP Range	System Start	First System SFP in the range (default 0.0.0.0)
	System End	Last System SFP in the range (default 0.0.0.0)
SFP A: Transmit IP	Transmit IP	Include/exclude the Transmit IP settings
	Starting Address	IP Address for first SFP Output in the range (default 0.0.0.0)
	Octet	Select the 1st, 2nd, 3rd, or 4th octet (default 4th) to increment the IP Address from the first in the range
	Inc	Enter the number to increment/decrement the IP Addresses in the range
SFP A: UDP Port	UDP Port	Include/exclude the UDP Port settings
	Port	Enter the UDP Port number for the range (default 1000)
	Inc	Enter the number to increment/decrement the UDP Port number in the range (default 1)

Output Video/Audio/Ancillary Bulk Configuration Menu Buttons

Button Group	Button/Data pad	Description
SFP B: Redundancy Mode	Redundancy Mode	Include/exclude the Redundancy Mode settings
	Enable	Enable/Disable Redundancy Mode settings (default is Disable)
Stream Format	Stream Format	Include/exclude the Stream Format settings
	ST 2110-20	Video stream
Enter	Enter	Apply bulk configuration
Cancel	Cancel	Cancel settings, return to IP I/O Config menu

Port Config SFP (includes QSFP) Bulk Configuration Menu Buttons

Button Group	Button/Data pad	Description
SFP A/B System SFP Range	System Start	First System SFP in the range
	System End	Last System SFP in the range
SFP A: Local IP	Local IP	Include/exclude the Local IP settings
	Starting Address	Local IP Address for first SFP Input in the range (default 0.0.0.0)
	Octet	Select the 1st, 2nd, 3rd, or 4th octet to increment the Local IP Address from the first in the range
	Inc	Enter the number to increment/decrement the Local IP Addresses in the range
SFP A: Subnet Mask	Subnet Mask	Include/exclude the Subnet Mask settings
	Starting Address	Subnet Mask Address for first SFP Input in the range
	Octet	Select the 1st, 2nd, 3rd, or 4th octet to increment the Subnet Mask Address from the first in the range
	Inc	Enter the number to increment the Subnet Mask Address in the range
SFP A: Gateway	Gateway	Include/exclude the Gateway settings
	Starting Address	Gateway Address for first SFP Input in the range
	Octet	Select the 1st, 2nd, 3rd, or 4th octet to increment the Gateway Address from the first Gateway Address in the range
	Inc	Enter the number to increment the Gateway Address in the range

Port Config SFP Bulk Configuration Menu Buttons

Button Group	Button/Data pad	Description
SFP B: Local IP, Subnet Mask, Gateway	All	Same as SFP A above
Enter	Enter	Apply bulk configuration
Cancel	Cancel	Cancel settings, return to IP I/O Config menu

Note: Changing any one 4K input/output to a non-4K streaming format (ST 2110-20), results in all the inputs/outputs in the group being changed to the selected format.

About Advanced IP I/O Address and Port Configuration

Transmit IP Addresses and UDP Ports

The Transmit IP Address and the UDP Port Address must match. You can use the default UDP port setting of 1000 or change it to fit your workflow. Setting the UDP Port number allows you to send two video streams with different UDP port numbers to the same IP address.

Multicast signals can be transmitted to and from the switcher by setting the first octet of the address to between 234 and 239
Ethernet switches enable an IGMP Query Server in order to pass Multicast signals.

Local IP Addresses

The Local IP Address is used for two purposes:

- To transmit the Local IP Address from the switcher system so other devices can identify where data is being transmitted from, and
- As the Receive IP Address so devices can send data to the switcher system.

Receive IP Addresses and UDP Ports

For the Receive IP address channels, you can either use the default presets or change them to fit your preferences, including the Local IP. The default port setting for Receive IP is N/A. The N/A setting means signals from an IP address with any port setting is available to the configured device. Setting the UDP Port number allows you to filter signals, for example signals from two or more channels using the same IP address.

Configure the Advanced IP I/O IP Address and Ports

Configure IP I/O Transmit IP Addresses and UDP Ports

To transmit a video signal from a Switcher IP I/O Module channel, the Transmit IP address must be set; the factory default is 0.0.0.0. The default port assignment is 1000.

1 In the Eng Setup, Video I/O, Modular IP Config switcher menu tab, select the Transmit IP Address data pad for the IP I/O channel, enter the IP address in the pop-up keypad, and select **Enter**.

2 To set the Transmit IP UDP Port, select the data pad for the channel, enter a port number, and select **Enter**.

3 Select the **Apply Settings** button.

Configure IP I/O Receive IP Addresses and UDP Ports

To receive signals over IP, you must set the Local IP address so the signal is available to your device. For the Receive IP address channels, you can either use the factory presets or change them to fit your preferences, including the Local IP. The default port setting for Receive IP is N/A. In the Eng Setup, Video I/O, Modular IP Config switcher menu tab, select the Local IP data pad for the I/O IP channel you wish to configure, enter the IP address for your device, and select **Enter**.

1 Select the Receive IP Address data pad for the Modular I/O IP channel, enter the IP address in the pop-up keypad or select dot (.) to select the Local IP address, and select **Enter**.

2 To set the Receive IP UDP Port, select the UDP Port data pad for the channel, enter a port number, and select **Enter**.

3 Select the **Apply Settings** button.

Configure Advanced IP I/O Multicast Video Signal

IP addresses for Multicast must use 224 through 239 as the first octet in the address. A Multicast signal can then be sent to an Ethernet switch or received to your local device.

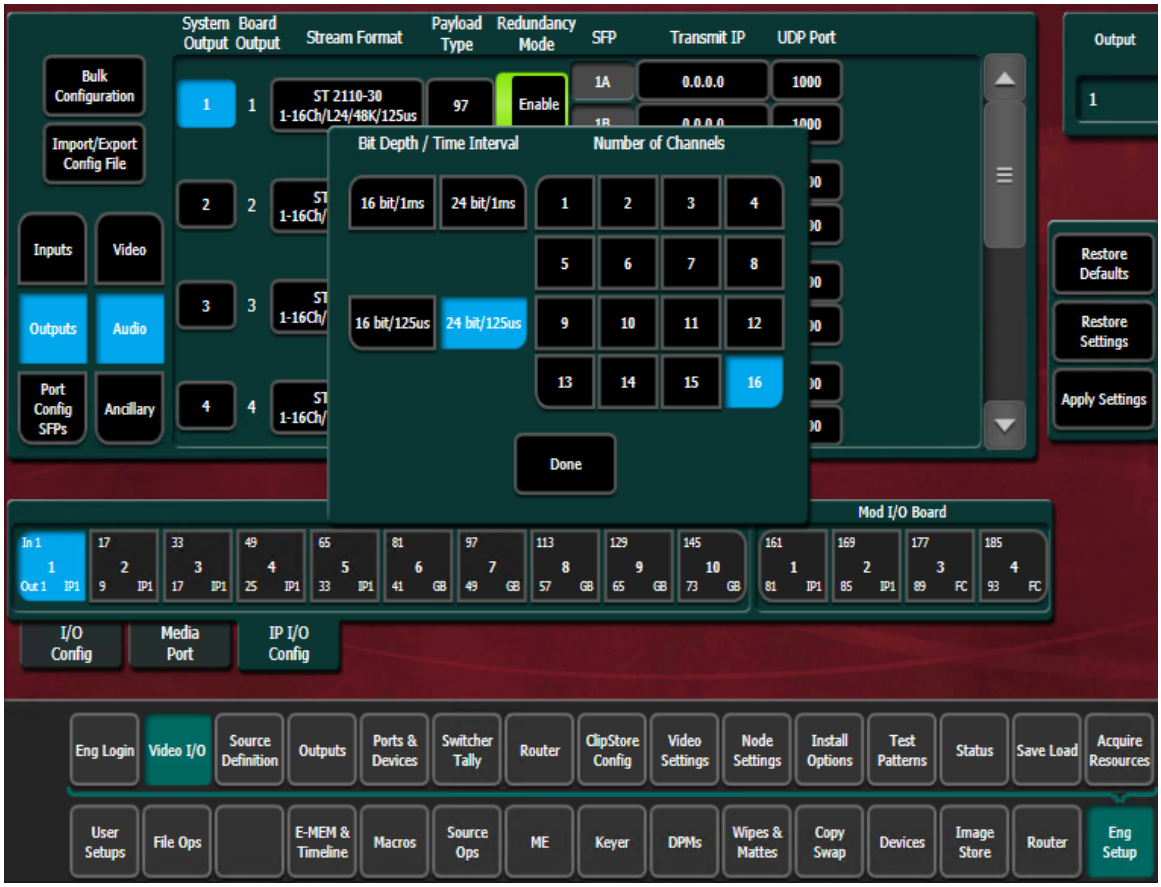
> Note: Ethernet switches must have the IGMP Query Server enabled to receive a Multicast signal.

1 In the Eng Setup, Video I/O, IP Config menu tab, select the Receive IP or Transmit IP data pad for the IP I/O channel you wish to configure, enter the Multicast IP address, and select **Enter**.

2 To set an IP UDP Port, select the UDP Port data pad for the channel, enter a port number, and select **Enter**.

3 Select the **Apply Settings** button.

Configure ST 2110-30 Audio Type for Inputs/Outputs



The K-Frame IP I/O Cards can be configured to send or receive in a bit depth of either 16 or 24 bits and a Time Interval of 1ms or 125 microseconds. The K-Frame switcher does not make conversions of the Bit Depth or Time Interval as the audio passes through the I/O Cards and the switcher. Therefore the audio format on input to the switcher must match the audio format at of the output of the switcher.

Configure ST 2110-40 Ancillary

1 Select Eng Setup, Video I/O, IP I/O Config in the menu.

2 Select the **Inputs** then **Ancillary** button to delegate the menu.

3 Navigate to a System Input using the scroll bar or select the SFP data pad (top right) and scroll with the Menu Panel soft knob or a mouse wheel.

4 Optionally, select the Redundancy **Enable** button.

5 Select the **Receive IP/Transmit IP** data pad, enter the IP Address in the pop-up keypad, and select **Enter**.

a If Redundancy Mode is enabled, configure the Receive IP Address for SFP B also.

6 Select the **UDP Port** data pad, enter a port number. Select **Enter**.

IP Input Output Configuration

The GV K-Frame XP from Grass Valley offers an all IP, all SDI, or hybrid IP/SDI I/O board setup. This Release Note is focused on the New Advanced IP I/O boards:

- Video 16x8 I/O Advanced IP
- Mod 8x4 I/O Advanced IP

Supported Frame Rates QSFP 100GbE

Video I/O, Advanced IP with 100GbE QSFP Video Frame Rates (Hz)

720p	50	59.94	60		
1080i	25	29.97	30		
1080p	25	23.98	30	23.98	24
1080p-Level A	50	59.94	60		
2160p	25	29.97	30	23.98	24
2160p	50	59.94	60		

Supported SFP/QSFP Modules

The following SFP/QSFP modules are supported for the Advanced IP boards in GV K-Frame XP, available from Grass Valley:

- K-FRM-IO-SFP10-25G
- K-FRM-IO-QSFP-100G

10GbE/25GbE Advanced IP I/O boards (K-FRM-IO-SFP10-25G)

Advanced IP boards equipped with the dual-use 10GbE/25GbE SFPs allow for more bandwidth through fewer SFPs and fiber connections.

IMPORTANT: Each Advanced IP board with Dual-use SFPs must be configured as 25GbE.

Advanced IP Board QSFP/SFP Speed and Supported Formats

Image Format	SMPTE	Format Speed Gb/s	Board SFP Speed (Gb/s)	
			100GbE	25GbE
720p 59.94Hz 1080i 29.97Hz 1080p 29.97Hz	ST 2110-20	1.3	Supported	Supported
1080p 59.94Hz	ST 2110-20	2.6	Supported	Supported
2160p 29.97	ST 2110-20 Uncompressed	10.4	Supported	NOT Supported
2160p 59.94	ST 2110-20 Uncompressed		Supported	NOT Supported

Hot Swappable Advanced IP I/O Boards

Advanced IP I/O boards are hot swappable. QSFPs/SFPs are not hot swappable.

Troubleshooting

When the Frame IP Address is entered into a browser, the IP SFP Statistics web page provides useful data for determining if the bandwidth for an SFP has been exceeded in relation to the image format speed (Gb/s).

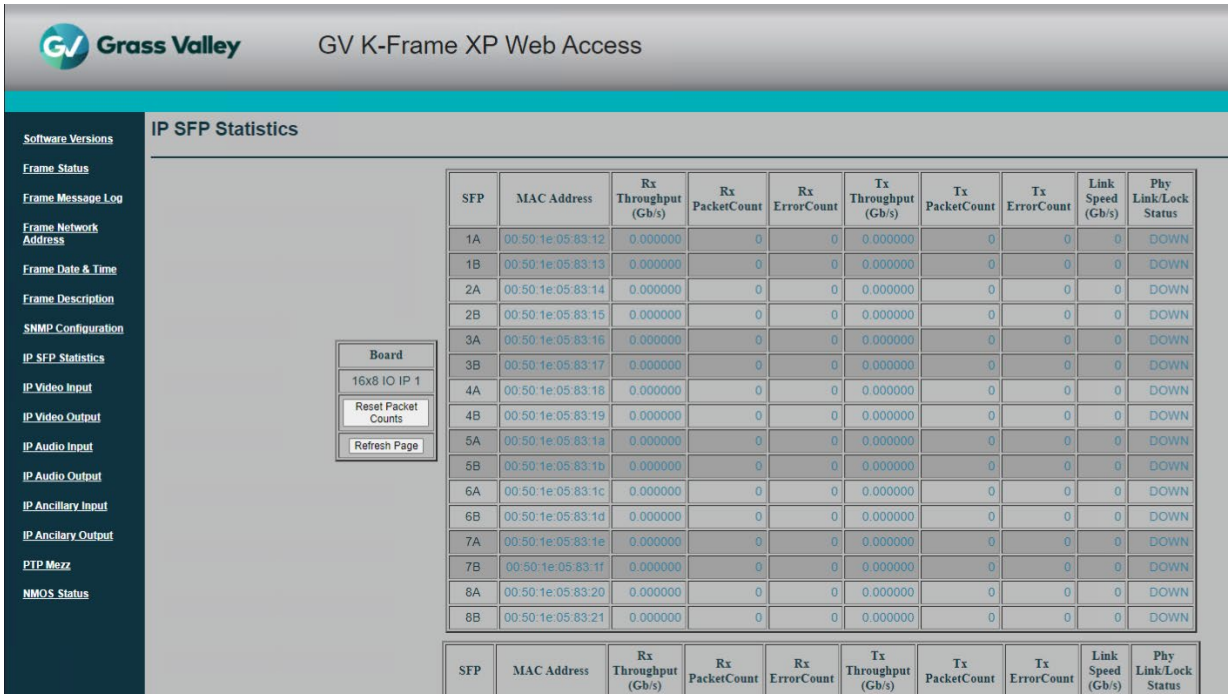
Additionally, it can be determined if an SFP is passing video; if an SFP is configured and the Gb/s throughput

CAUTION: Exceeding the SFP bandwidth will result in a signal loss for the associated SFP ports.

column displays a number lower than the configured SFP speed, there may be an issue with the SFP module or the bandwidth has been exceeded.

Open the GV K-Frame Web Access pages by entering the Frame IP Address into a browser on the system network and selecting **IP SFP Statistics** on the left.

Note: The Phy Link/Lock Status column (far right) in the SFP Statistics Web Access page, provides Ethernet link status. If the status is “Up”, the Ethernet link is up and locked, the speed is matched between the switcher and the external device, and it is working properly. If the status is “Down”, there is either an issue with the link connection or a mis-match of Ethernet link speed.



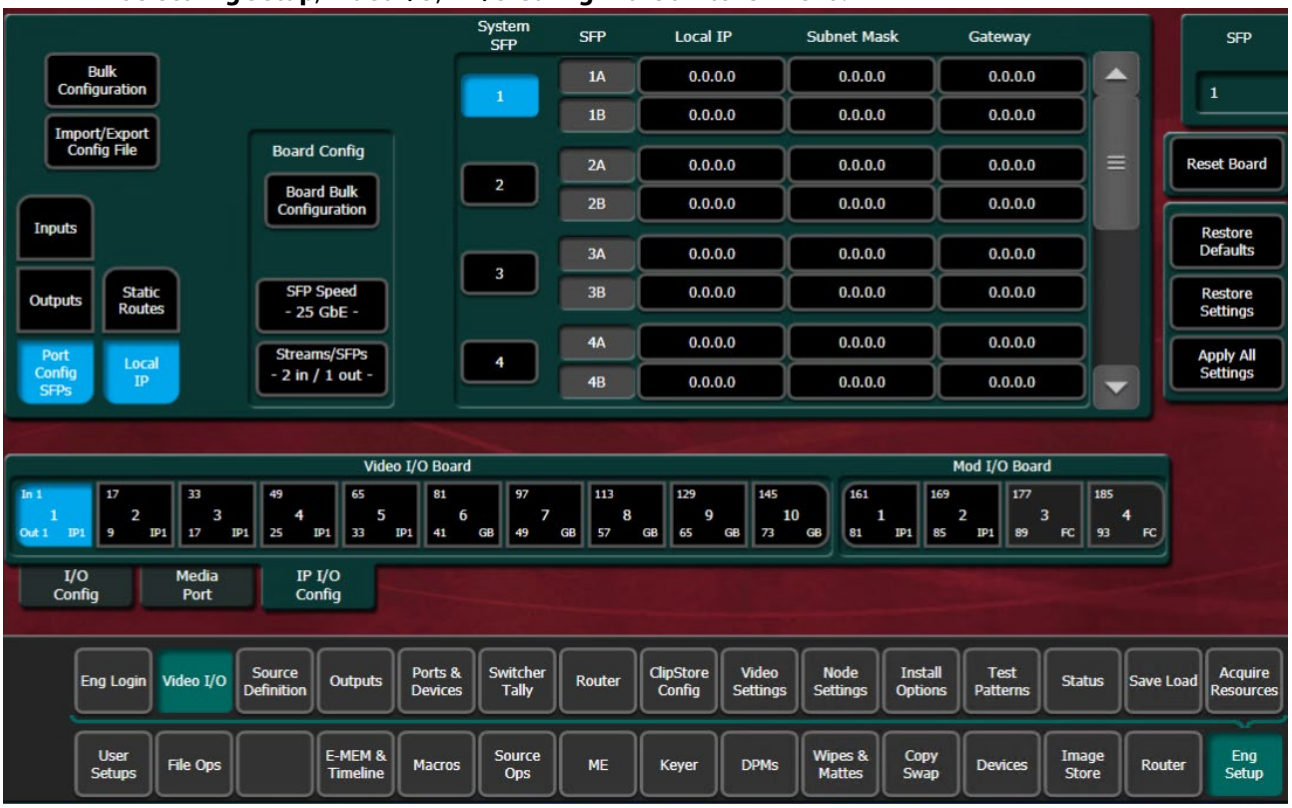
SFP	MAC Address	Rx Throughput (Gb/s)	Rx PacketCount	Rx ErrorCount	Tx Throughput (Gb/s)	Tx PacketCount	Tx ErrorCount	Link Speed (Gb/s)	Phy Link/Lock Status
1A	00:50:1e:05:83:12	0.000000	0	0	0.000000	0	0	0	DOWN
1B	00:50:1e:05:83:13	0.000000	0	0	0.000000	0	0	0	DOWN
2A	00:50:1e:05:83:14	0.000000	0	0	0.000000	0	0	0	DOWN
2B	00:50:1e:05:83:15	0.000000	0	0	0.000000	0	0	0	DOWN
3A	00:50:1e:05:83:16	0.000000	0	0	0.000000	0	0	0	DOWN
3B	00:50:1e:05:83:17	0.000000	0	0	0.000000	0	0	0	DOWN
4A	00:50:1e:05:83:18	0.000000	0	0	0.000000	0	0	0	DOWN
4B	00:50:1e:05:83:19	0.000000	0	0	0.000000	0	0	0	DOWN
5A	00:50:1e:05:83:1a	0.000000	0	0	0.000000	0	0	0	DOWN
5B	00:50:1e:05:83:1b	0.000000	0	0	0.000000	0	0	0	DOWN
6A	00:50:1e:05:83:1c	0.000000	0	0	0.000000	0	0	0	DOWN
6B	00:50:1e:05:83:1d	0.000000	0	0	0.000000	0	0	0	DOWN
7A	00:50:1e:05:83:1e	0.000000	0	0	0.000000	0	0	0	DOWN
7B	00:50:1e:05:83:1f	0.000000	0	0	0.000000	0	0	0	DOWN
8A	00:50:1e:05:83:20	0.000000	0	0	0.000000	0	0	0	DOWN
8B	00:50:1e:05:83:21	0.000000	0	0	0.000000	0	0	0	DOWN

SFP	MAC Address	Rx Throughput (Gb/s)	Rx PacketCount	Rx ErrorCount	Tx Throughput (Gb/s)	Tx PacketCount	Tx ErrorCount	Link Speed (Gb/s)	Phy Link/Lock Status

Configure the IP Board SFPs

IMPORTANT: Each IP board with Dual-use SFPs must be configured as 25GbE for the Advanced IP boards.

1 Select **Eng Setup**, **Video I/O**, **IP I/O Config** in the switcher menu.



2 Select the **Port Config SFPs** button (below Inputs and Outputs).

3 Select a board from the Video I/O Board or Mod I/O Board (GV K-Frame X) or Video I/O Board (V-series) button row.

4 In the Board Config button pane, select the **SFP Speed** button, choose the configured SFP speed for the IP board **10GbE** or **25GbE**, and select **Done**.

5 Select the **Streams/SFPs in/out** button and make a selection select **Done**.

6 Select **Apply Settings**.

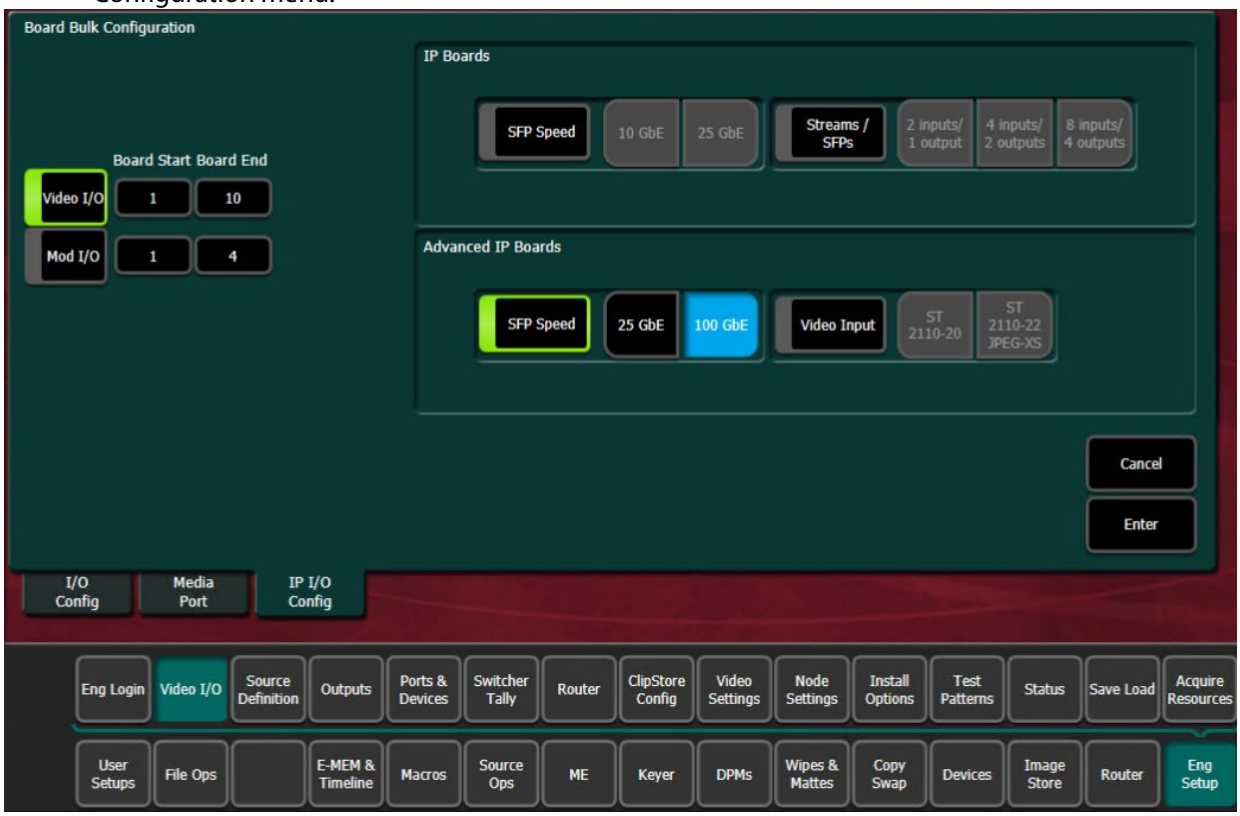
Note: When the Apply Settings button is selected in the Port Config SFPs menu, the settings for Inputs, Outputs, and SFPs (Video, Audio, and Ancillary) are applied. Only the changes are sent to the Frame.

If you are attempting to set the IP board to 25GbE and you have 10Gb/s only SFPs, the system will report an error but still attempt to run at the 25Gb/s speed.

Configure Boards in Bulk

1 Select **Eng Setup**, **Video I/O**, **IP I/O Config**.

2 Select **Port Config SFPs**, **Bulk Configuration** to display the SFP Port Config Bulk Configuration menu.



3 In the Board Bulk Configuration menu, enable the **Video I/O** or **Mod I/O** button.

4 Select the **Board Start**/**Board End** button and enter the board in the **Video I/O Board Start**/**Video I/O Board End** pop-up keypad.

5 On the Advanced IP Boards section enable the **SFP Speed** button and select **25GbE** when using SFPs or **100GbE** for QSFPs.

6 Select the appropriate Video Input format.

> **Note:** Only ST2110-20 is supported in V17.3.0.
> ST2110-22 JPEG-XS will be available in a later release.

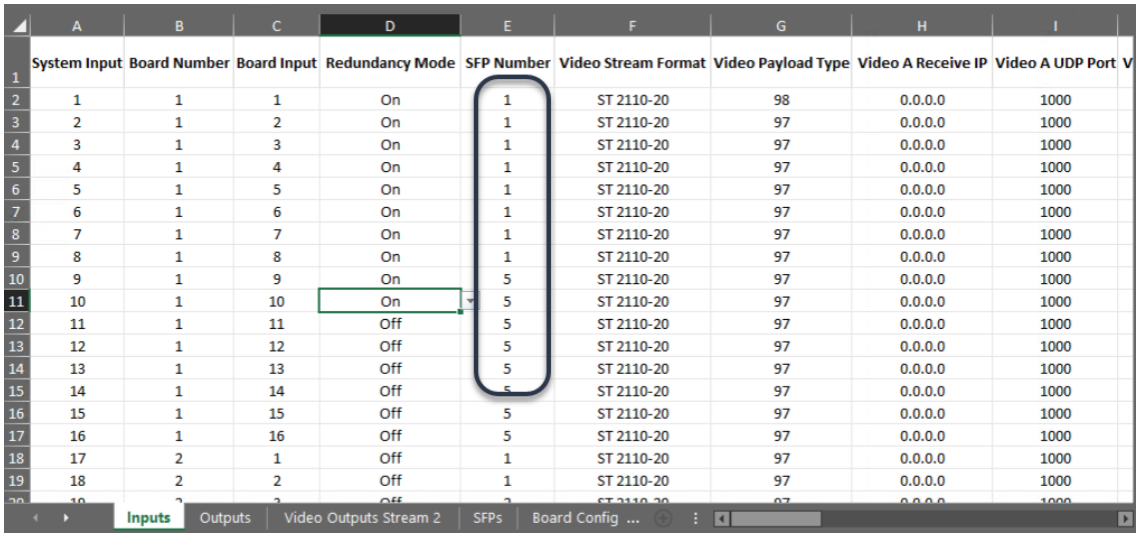
7 Select **Enter**.

About Board Bulk Configuration and the Import/Export Config File

The Board Config tab is available in the Import/Export Config File generated spreadsheet.
For the Advanced IP board the Streams are not used and ignored.
Drop down lists are provided to make selections in each cell for the SFP Speed, and Type columns.

	A	B	C	D	E	F
1	Board Number	SFP Speed	Streams/SFP	Video Input	Type	Notes
2	1	100 GbE	8 in / 4 out	ST 2110-20	IP	
3	2	100 GbE	2 in / 1 out	ST 2110-20	IP	
4	3	25 GbE	2 in / 1 out	ST 2110-20	IP	
5	4	25 GbE	2 in / 1 out	ST 2110-20	IP	
6	5	25 GbE	2 in / 1 out	ST 2110-20	IP	
7	6	25 GbE	2 in / 1 out	N/A	GB	
8	7	25 GbE	2 in / 1 out	N/A	GB	
9	8	25 GbE	2 in / 1 out	N/A	GB	
10	9	25 GbE	2 in / 1 out	N/A	GB	
11	10	25 GbE	2 in / 1 out	N/A	GB	
12	11	25 GbE	2 in / 1 out	ST 2110-20	IP	
13	12	25 GbE	2 in / 1 out	ST 2110-20	IP	
14	13	25 GbE	2 in / 1 out	N/A	SDI	
15	14	25 GbE	2 in / 1 out	N/A	SDI	
16						
17						

Inputs | Outputs | Video Outputs Stream 2 | SFPs | **Board Config**



	A	B	C	D	E	F	G	H	I
1	System Input	Board Number	Board Input	Redundancy Mode	SFP Number	Video Stream Format	Video Payload Type	Video A Receive IP	Video A UDP Port
2	1	1	1	On	1	ST 2110-20	98	0.0.0.0	1000
3	2	1	2	On	1	ST 2110-20	97	0.0.0.0	1000
4	3	1	3	On	1	ST 2110-20	97	0.0.0.0	1000
5	4	1	4	On	1	ST 2110-20	97	0.0.0.0	1000
6	5	1	5	On	1	ST 2110-20	97	0.0.0.0	1000
7	6	1	6	On	1	ST 2110-20	97	0.0.0.0	1000
8	7	1	7	On	1	ST 2110-20	97	0.0.0.0	1000
9	8	1	8	On	1	ST 2110-20	97	0.0.0.0	1000
10	9	1	9	On	5	ST 2110-20	97	0.0.0.0	1000
11	10	1	10	On	5	ST 2110-20	97	0.0.0.0	1000
12	11	1	11	Off	5	ST 2110-20	97	0.0.0.0	1000
13	12	1	12	Off	5	ST 2110-20	97	0.0.0.0	1000
14	13	1	13	Off	5	ST 2110-20	97	0.0.0.0	1000
15	14	1	14	Off	5	ST 2110-20	97	0.0.0.0	1000
16	15	1	15	Off	5	ST 2110-20	97	0.0.0.0	1000
17	16	1	16	Off	5	ST 2110-20	97	0.0.0.0	1000
18	17	2	1	Off	1	ST 2110-20	97	0.0.0.0	1000
19	18	2	2	Off	1	ST 2110-20	97	0.0.0.0	1000

Inputs | Outputs | Video Outputs Stream 2 | SFPs | Board Config ...

About Redundancy

Redundancy requires that the IP stream on QSFP/SFP B is being received on a separate network from QSFP/SFP A, so if one stream is compromised, the other stream is not affected.

Video I/O IP Setup and Configuration Overview

In the GV K-Frame XP Eng Setup, Video I/O, IP I/O Config menu, configure the Video I/O IP in the following order:

1 Configure the QSFPs/SFPs
   a Port Config SFPs (Local IP, Subnet Mask, Gateway),
   b Inputs (Streaming Format, Redundancy, Receive IP, UDP Port),
   c Outputs (Streaming Format, Redundancy, Transmit IP, UDP Port),
2 Review the IP Statistics Web Access page to verify stream throughput,
3 Troubleshoot any throughput issues, and
4 Verify timing for all sources using the Timing Analyzer in the Video Settings, Timing menu

Configure the Port Config QSFPs/FPs

Perform this procedure before configuring the inputs and outputs:

1 Select **Eng Setup**, **Video I/O**, **IP I/O Config**.
2 Select **Port Config QSFPs/SFPs**, **Bulk Configuration** to display the SFP Port Config Bulk Configuration menu.
3 In the Board Bulk Configuration menu, enable the **Video I/O** or **Mod I/O** button.
4 Select the **Board Start**/**Board End** button and enter the board in the **Video I/O Board Start**/**Video I/O Board End** pop-up keypad.
5 Based on the configured throughput speed of the SFPs installed, enable the QSFP/**SFP Speed** button and select **25GbE or 100GbE**.
6 Select **Enter**.

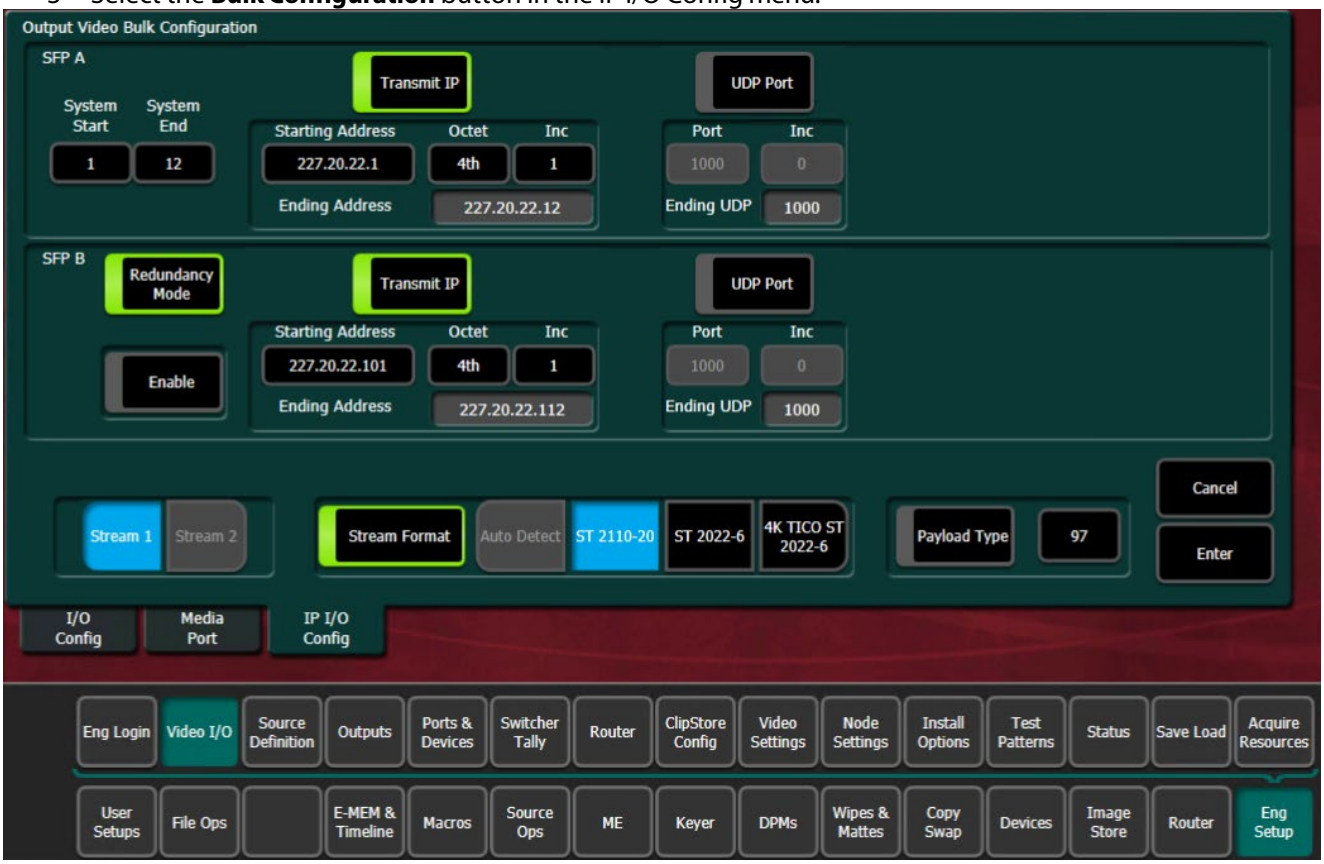
Configure System Inputs/Outputs

1 Select Eng Setup, Video I/O, IP I/O Config in the menu.
2 Select the **Inputs** or **Outputs** button to delegate the menu.
3 Navigate to a System Input/Output QSFP/SFP by selecting a Video I/O or Mod I/O Board button (bottom) and using the scroll bar or select the QSFP/SFP data pad (top right) and scroll with the Menu Panel soft knob or a mouse wheel.
4 Select the **Stream Format** data pad to select a format (**ST 2110-20**)
5 Select the **Enable** button for Redundancy.
6 Select the **Receive IP/Transmit IP** data pad, enter the IP Address in the pop-up keypad, and select **Enter**.
   a If Redundancy Mode is enabled, configure the IP Address for SFP B also.
7 Select the **UDP Port** data pad, enter a port number.
8 Select **Enter**.

Configure System Input or Output SFPs in Bulk from the Menu XP Frames

Bulk Advanced IP I/O spreadsheets can be imported between GV K-Frame XP systems. When importing to non XP Frames, additional inputs/outputs will be ignored in the spreadsheet.

1 In the Video I/O, IP I/O Config menu, select **Inputs** or **Outputs** from the menu delegation buttons.
2 Select **Video**, **Audio**, or **Ancillary** from the stream type delegation buttons.
3 Select the **Bulk Configuration** button in the IP I/O Config menu.



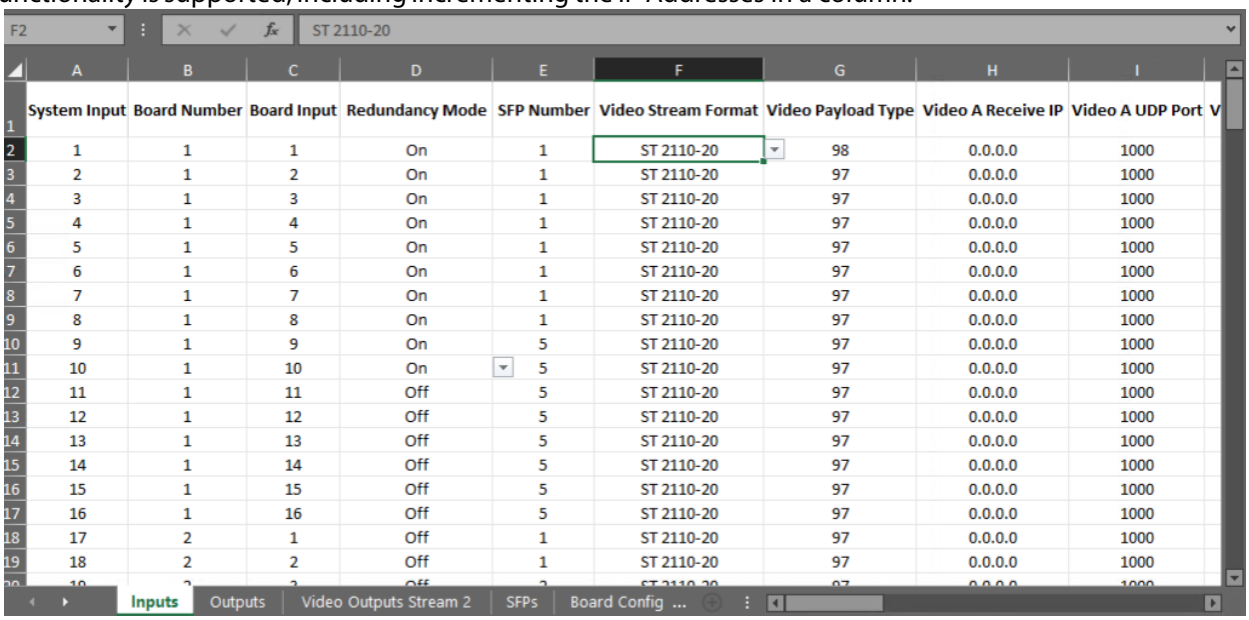
4 Enter a range of QSFP/SFP Inputs or Outputs for Video, Audio, or Ancillary in the Video Bulk Configuration menu:
   a Select the **System Start** data pad, enter a System Input/Output number in the pop- up keypad, and select **Enter**.
   b Select the **System End** data pad, enter a System Input/Output number.
5 With the **Transmit IP** or **Receive IP** button on, select the **Starting Address** data pad and enter the IP Address.
6 Optionally:
   a Select the **Octet** data pad and select the octet to increment when configuring the IP Addresses, and/or,
   b Select the **Inc** data pad and enter a positive or negative incremental value.
7 With the **UDP Port** button on, select the **Port** data pad and enter a port number (1000 is the default).
8 In V17.3.0 the only **Stream Format type** available is ST 2110-20, select **Enter**.
9 Optionally, enable the **Payload Type** button, select the **Payload ID** button (just right of the Payload Type enable button), enter a value between **96** and **127** and select **Enter**.

About Import/Export Config File (Bulk Configuration)

Accessed by selecting the Import/Export Config File button in the IP I/O Config menu, you can configure all of the Advanced IP I/O Config menu settings within an offline Excel spreadsheet and then import the file and apply the configuration.

When exported, a .ipe configuration file is created in Remote Storage (remote from the switcher, it is not recommended to install a third-party spreadsheet application on the switcher system).

The IP Config settings are exported as a Microsoft Excel file. Pull-down menus are provided for cells that have multiple options in the Video I/O, IP I/O Config menu. The Inputs and Outputs tabs (bottom) are provided to access those menu delegations. In addition, the far right column is for notes. All Excel functionality is supported, including incrementing the IP Addresses in a column.



F2 | ST 2110-20

	A	B	C	D	E	F	G	H	I
1	System Input	Board Number	Board Input	Redundancy Mode	SFP Number	Video Stream Format	Video Payload Type	Video A Receive IP	Video A UDP Port	V
2	1	1	1	On	1	ST 2110-20	98	0.0.0.0	1000	
3	2	1	2	On	1	ST 2110-20	97	0.0.0.0	1000	
4	3	1	3	On	1	ST 2110-20	97	0.0.0.0	1000	
5	4	1	4	On	1	ST 2110-20	97	0.0.0.0	1000	
6	5	1	5	On	1	ST 2110-20	97	0.0.0.0	1000	
7	6	1	6	On	1	ST 2110-20	97	0.0.0.0	1000	
8	7	1	7	On	1	ST 2110-20	97	0.0.0.0	1000	
9	8	1	8	On	1	ST 2110-20	97	0.0.0.0	1000	
10	9	1	9	On	5	ST 2110-20	97	0.0.0.0	1000	
11	10	1	10	On	5	ST 2110-20	97	0.0.0.0	1000	
12	11	1	11	Off	5	ST 2110-20	97	0.0.0.0	1000	
13	12	1	12	Off	5	ST 2110-20	97	0.0.0.0	1000	
14	13	1	13	Off	5	ST 2110-20	97	0.0.0.0	1000	
15	14	1	14	Off	5	ST 2110-20	97	0.0.0.0	1000	
16	15	1	15	Off	5	ST 2110-20	97	0.0.0.0	1000	
17	16	1	16	Off	5	ST 2110-20	97	0.0.0.0	1000	
18	17	2	1	Off	1	ST 2110-20	97	0.0.0.0	1000	
19	18	2	2	Off	1	ST 2110-20	97	0.0.0.0	1000	

Inputs | Outputs | Video Outputs Stream 2 | SFPs | Board Config ...

Note: Importing the bulk config file with alterations to the System Input, Board Number, or Board Input cells can result in reported errors, however this will not prevent other valid settings from being imported.

The Board Config tab is used to Import/Export the Config File generated spreadsheet.

	A	B	C	D	E	F
1	Board Number	SFP Speed	Streams/SFP	Video Input	Type	Notes
2	1	100 GbE	8 in / 4 out	ST 2110-20	IP	
3	2	100 GbE	2 in / 1 out	ST 2110-20	IP	
4	3	25 GbE	2 in / 1 out	ST 2110-20	IP	
5	4	25 GbE	2 in / 1 out	ST 2110-20	IP	
6	5	25 GbE	2 in / 1 out	ST 2110-20	IP	
7	6	25 GbE	2 in / 1 out	N/A	GB	
8	7	25 GbE	2 in / 1 out	N/A	GB	
9	8	25 GbE	2 in / 1 out	N/A	GB	
10	9	25 GbE	2 in / 1 out	N/A	GB	
11	10	25 GbE	2 in / 1 out	N/A	GB	
12	11	25 GbE	2 in / 1 out	ST 2110-20	IP	
13	12	25 GbE	2 in / 1 out	ST 2110-20	IP	
14	13	25 GbE	2 in / 1 out	N/A	SDI	
15	14	25 GbE	2 in / 1 out	N/A	SDI	
16						

Inputs | Outputs | Video Outputs Stream 2 | SFPs | Board Config

Drop down lists are provided to make selections in each cell for the QSFP/SFP Speed, Streams/ SFP (Streams ignored for Advanced IP boards), and Type columns. Row color will reflect the changes. The Input and Output tabs will be updated accordingly.

About the "Type" Column

The IP Config file Type column (scroll to the far right) provides a list of the IP I/O and SDI I/O boards installed in the system, as of the last export. SDI board types can be configured for IP so if an Advanced IP board were to be installed in that slot later, the imported IP Config file settings would be applied.

Note: Pre-configured Advanced IP I/O settings in the SDI Type cells are informational only, until a physical Advanced IP I/O board is installed in the Frame.

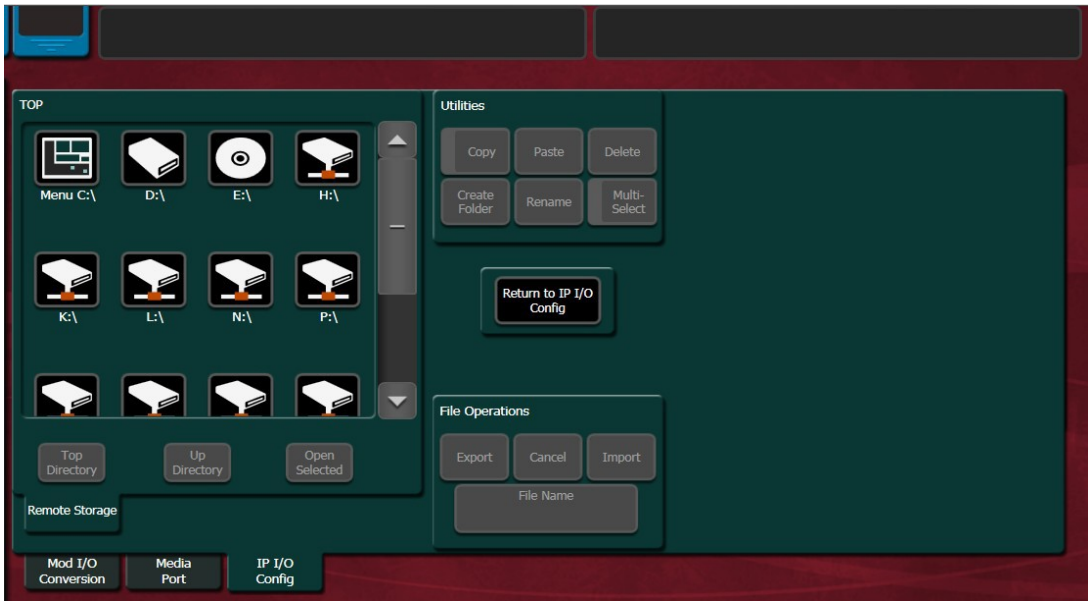
Spreadsheet Formatting Tip

To make the spreadsheet much easier to read and edit, format the alignment of the heading cells to vertical (90 degrees). This will reduce the width of the spreadsheet significantly.

Bulk Configure QSFPs/SFPs Using a Spreadsheet

1 In the Video I/O, IP I/O Config menu, select the **Import/Export Config File** button.

2 Navigate to the location you wish to save the GV K-Frame XP config file, (C:\K_Frame\User).



3 Select the **File Name** button in the File Operations pane and enter a name in the pop- up keypad, select **Enter**.

4 Select **Export**.

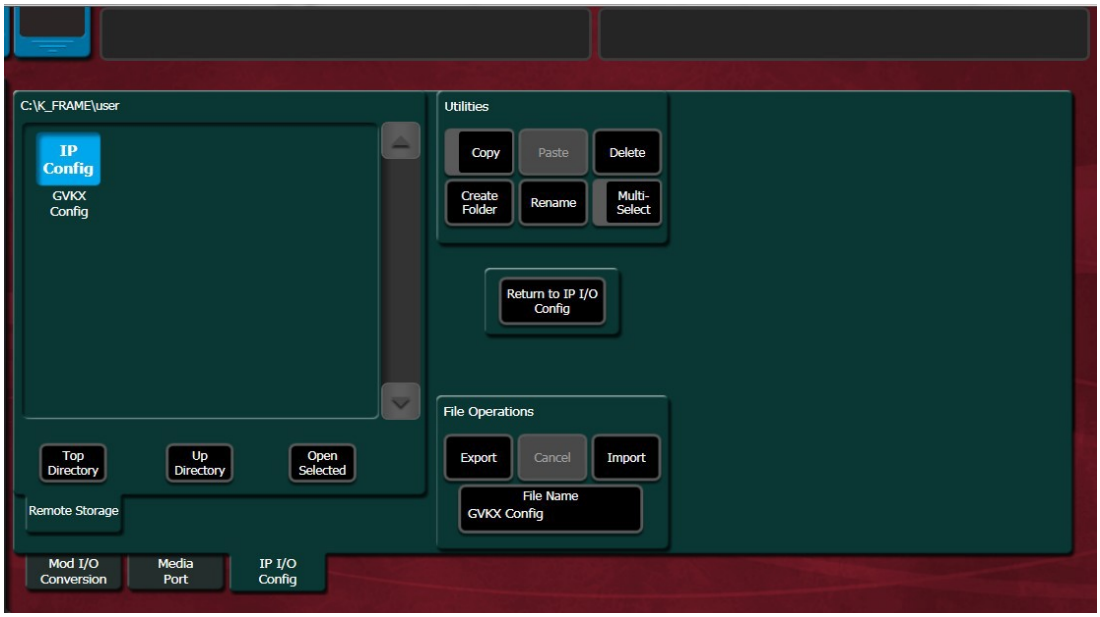
5 Open the **Config.ipe** folder (C:\K_FRAME\user\GVKX Config.ipe).

6 Open and edit the Excel Workbook Config file.

IMPORTANT: For tables with button descriptions corresponding to the cells

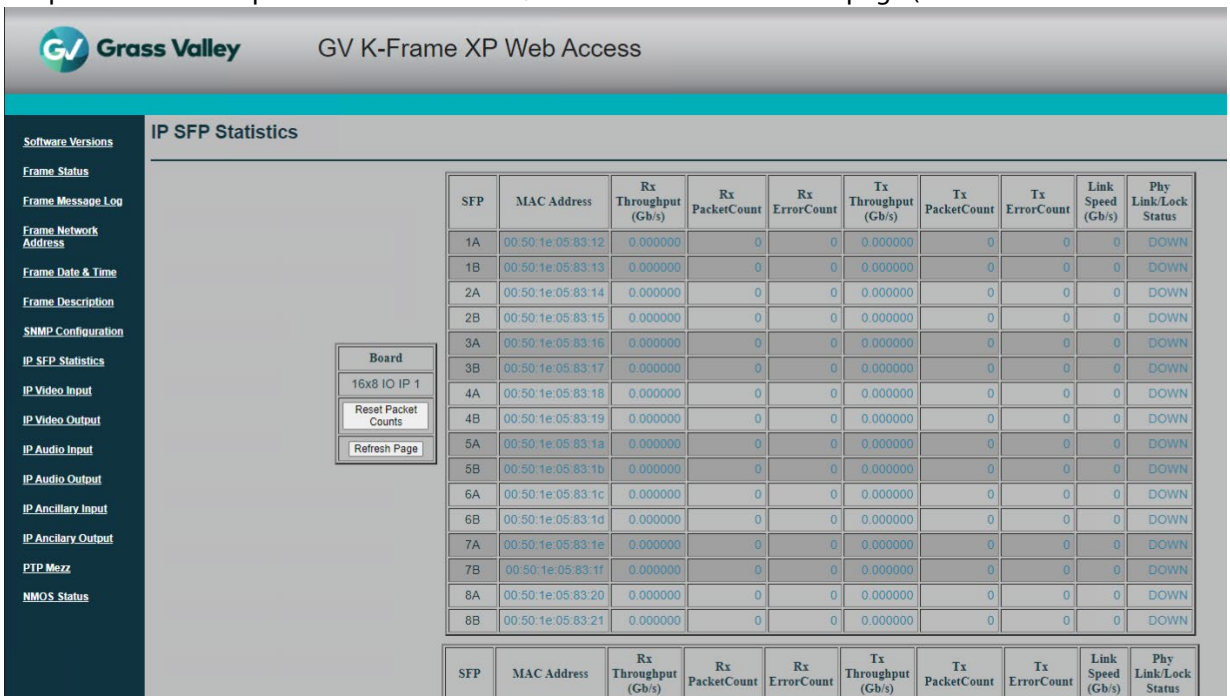
7 Save the file in Excel.

8 Navigate to and select the **IP Config** folder in the IP I/O Config menu you named and select **Import**.



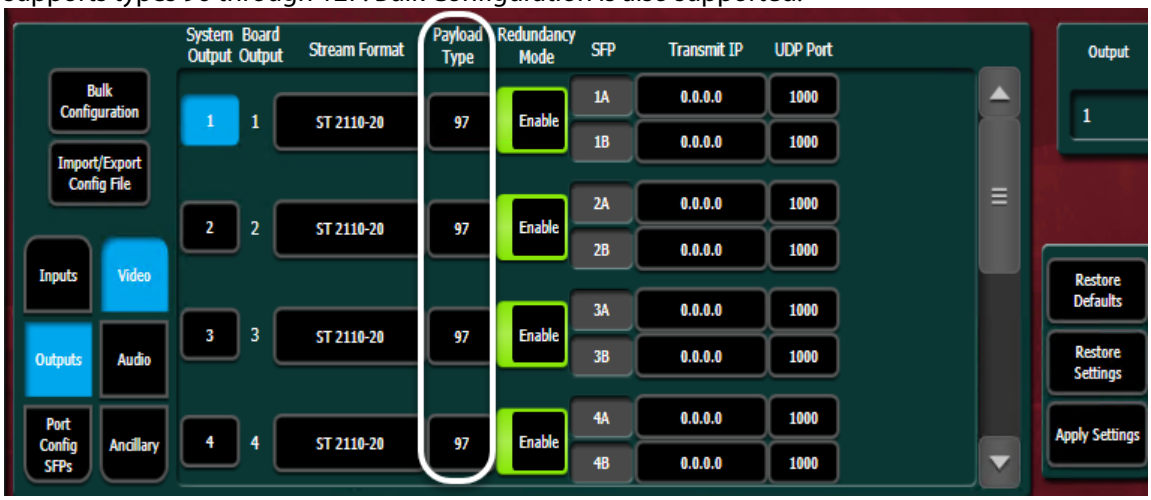
IP QSFP/SFP Statistics Web Access

IP QSFP/SFP Statistics are available the GV K-Frame XP Web Access pages. You can connect to the Web Access by entering the Video Frame's IP Address into a browser from a PC on the network. Buttons are provided to reset packet counts for each I/O board and to refresh the page (refreshes the entire website).



Setting the RTP Payload Type

Located in the Eng Setup, Video I/O, IP I/O Config menu, the *Payload Type* column allows you to set RTP (Real-time Transport Protocol) Payload types for each IP System Input and System Output Video, Audio, and Ancillary data streams. In most cases the RTP Payload Type defaults are used, however the switcher supports types 96 through 127. Bulk Configuration is also supported.



K-Frame/Formerly SAM/Everts Product RTP Payload Values

The RFC specification does not provide specific values for the RTP Payload Type. Each manufacturer has the freedom to choose their own. Some K-Frame and formerly SAM branded product's along with Everts default payload values are listed below. It is recommended that a single set of values be used across a site whenever possible. In order to work with some formerly SAM branded products, for example the IQ Modular products and the Kahuna and Kula video switchers, these values will need to be set to either Set 1 or Set 2 Payload Types.

IMPORTANT: The Extended Headers must be turned off on formerly branded SAM products.

K-Frame/Formerly SAM/Everts Default Payload Types

RTP Payload Type	K-Frame Switchers	FormerlySAM branded products Set 1	Formerly SAM branded products Set 2	Everts (As of Oct 2018)
Video ST 2110-20	0x97	0x96	0x100	0x96
Audio ST 2110-30	0x96	0x97	0x102	0x97
Ancillary ST 2110-40	0x100	0x100	0x103	0x100

To reset the Payload Type to the default, select the **Payload Type** data pad and enter **.** (**dot**) in the pop-up keypad (entering any number below 96 inserts 96 and entering any number above 127 inserts 127).

Set the RTP Payload Type

1 Select **Inputs**/**Outputs**.

2 Select **Video**, **Audio**, or **Ancillary**.

3 Select the **Payload Type** data pad, enter the Payload Type number in the pop-up keypad (numbers lower than 96 will return 96 and numbers higher than 127 will return 127).

4 Select **Apply Settings** (middle right).

Set the RTP Payload Type in Bulk Configuration

RTP Payload Type can be configured for multiple System Inputs/System Outputs in the Bulk Configuration menu.

1 Select **System Input** or **System Output**, then **Video**, **Audio**, or **Ancillary**.

2 Select the **Bulk Configuration** button.

3 Enter the **System Start** and **System End** (top left) parameters (Inputs/Outputs) by selecting each and entering the number in the pop-up keypad.

4 Turn on the **Payload Type** enable button (lower right).

5 Select the **Payload Type** data pad (right of the Payload Type enable button), enter the number in the pop-up keypad, and select **Enter**.

6 Select **Enter** in the Bulk Configuration menu (right of the Payload Type data pad).

7 Select **Apply Settings** in the IP I/O Config menu (middle right).

Set Payload Type to Default

1 Select the **System Input** or **System Output**.

2 Select the **Payload Type** data pad.

3 Enter a **.** (**dot**) in the pop-up keypad.

Advanced IP I/O Gearboxing on Outputs

Advanced IP I/O boards can be placed in Gearbox mode to output:

- 2160p independent single streams
- 4K 2SI streams gearboxed into four 1080p streams transmitted on four outputs, the first group consists of outputs 1, 2, 3, and 4 and the second group of outputs 5, 6, 7, and 8, and
- Single 1080p gearboxed streams.

The 1080p Output Format setting provides a video stream for monitoring.

UltraMatch and GearBox on Advanced IP I/O and Gearbox Boards

The GV K-Frame XP Video Processing Frame "UltraMatch®" was specifically developed to assist users in addressing mixed formats within a 4K/HD mixed mode production. Advanced IP I/O boards in the GV K-Frame XP can convert incoming 2160p and 1080p video to either 2160p or 1080p video to match the selected HD or 4K Frame Operating Mode.

When the Input Mode is set to “Bypass/UltraMatch”, the individual input detects the incoming source’s video format and automatically performs the correct conversion. Alternatively, the Input Mode may be set to “GearBox” and the Input Format can be set manually to 2160p or either of the Quad Link Formats: 4K 2SI. Inputs which are 1080i can also be converted, some occasional motion artifacts may occur due to interlace and the audio will not be valid.

UltraMatch and GearBox Controls	2160p	1080p
Input Mode – Bypass/UltraMatch	Passes	Yes
Output Mode – Bypass/UltraMatch	Passes	Yes
Input Mode - GearBox	Passes	Yes
Output Mode - GearBox	Passes	Yes

These conversions are specifically designed for converting between 2160p and 1080p formats. In most situations, it will be difficult for the eye to detect the difference between a conversion done on the K-Frame XP’s 8x4 SDI conversion board (K-FRM-IO-CONV-XP) and one accomplished by the UltraMatch® mini- format convertor or GearBox hardware on the SDI GearBox and IP I/O boards. If your production requirement calls for conversion to/from 720p video or Standard Definition Video, then the K-FRM-IO-CONV-XP board (SDI) or an external conversion box should be utilized.

The following menus show the controls for configuring the I/O Boards.

Advanced IP I/O Config Menu

The Advanced IP I/O Config menu was updated to include the additional configuration settings on the Video I/O and Mod I/O Board data pads.

Video I/O Board and Mod I/O Board Configuration Data

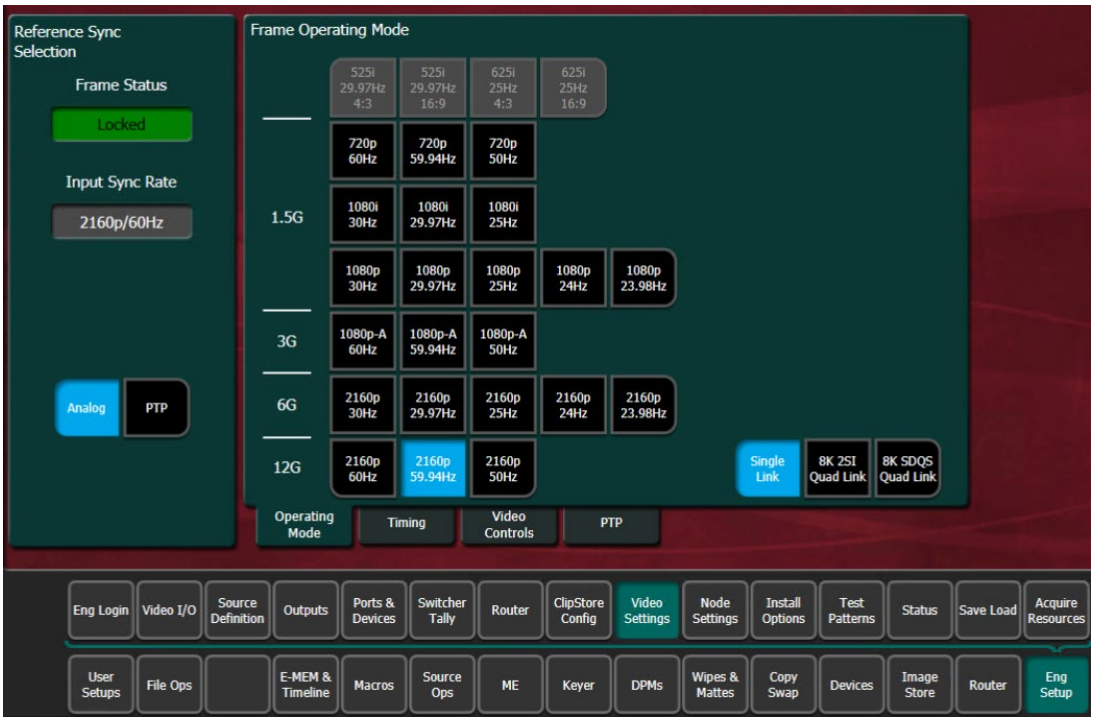
Button/Label	Description

Board Tile Button enhancements apply to I/O Config and Advanced IP/IO Config menu tabs.

Board Selection 	Board configuration settings: • First system input on the board—Top left • First system output on the board—Bottom left • Board slot in Frame—Center • Board type—Bottom right • IP (Internet Protocol) • FC (Format Conversion) • GB (Gearbox) • --- No board

Video Settings

The Video Settings menu reports the current system sync reference and status, allows selection of the Frame Operating Mode, and provides other system functions.



Reference Sync Selection

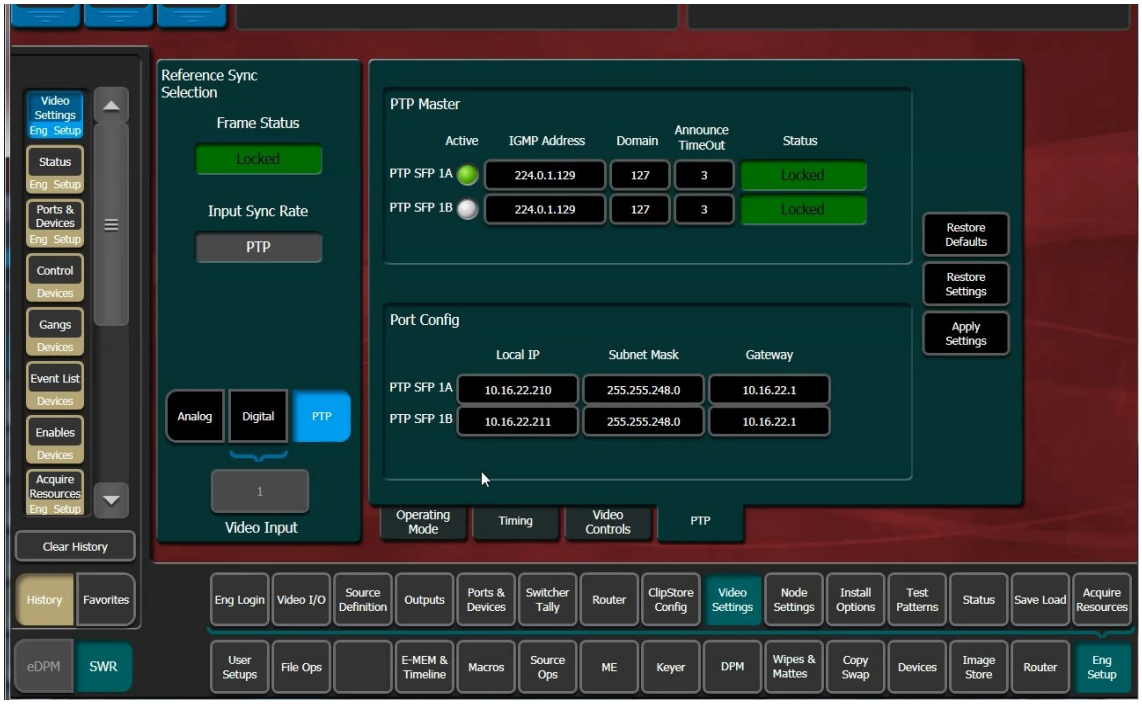
Choosing **Analog** in the Eng Setup, Video Settings menu, selects the Analog Reference connector on the Video Processor Frame for system reference. Any interruption of an analog reference source can cause GV K-Frame XP system problems.

Frame Status – Reports the current sync status of the frame (for example, Locked).

Input Sync Rate – Reports the current input sync reference format.

About PTP Reference

GV K-Frame XP switchers connect to, and receive PTP reference from, the PTP Master server on the network. The Grass Valley switcher PTP reference parameters can be configured in the Eng Setup, Video Settings, PTP menu tab. PTP settings are saved in Engineering Setups as part of the Video Settings.



Configuring the PTP Master

The networked PTP master server configuration is set by the administrator. The PTP master server network settings and the PTP Master switcher menu pane settings must match.

Default Switcher Master PTP configuration

PTP Master Pane Button Descriptions

Button	
SFP A	Primary SFP input
SFP B	Secondary, redundant SFP input
Active	Active SFP • Green=Active • White=Inactive
IGMP Address	Multicast network protocol address for PTP reference, select to enter address
Domain	Network domain, select to enter domain ID
Announce TimeOut	Number of timeouts before alerting to a PTP Master device data loss, select to enter Announce TimeOut number
Status	• Locked=Synced, • Unlocked=Present not synced, • Not present=No connection

SFP Redundancy

SFP inputs have redundancy and automatically change to the redundant channel if there is an interruption in the connection. If for example a disruption occurs with input SFP 1A, the primary, the secondary SFP 1B automatically becomes the active connection (green status). When SFP 1A reconnects, SFP 1A will again become the active SFP without any action on the part of the operator.

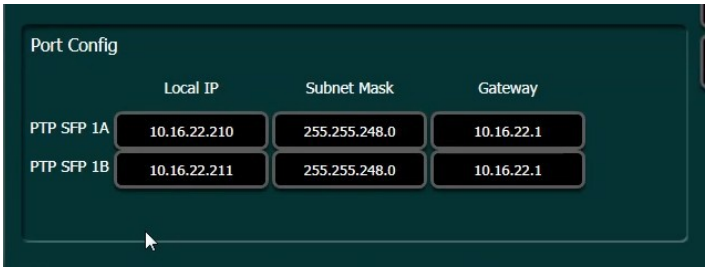
SFP Input Status

The SFP Status for each input can be locked while the Frame Status is unlocked; for example while the Frame is still connecting. Once connected, the Frame Status will display “Locked” and the PTP reference will be synced. However, both SFP inputs must be locked for the Frame to report a “Locked” status.

Port Configuration

The Local IP, Subnet Mask, and Gateway match the Frame backplane SFPs. The input SFPs must match the Master PTP server network settings to synchronize the signals. Local IPs for each SFP

input must be different to support redundancy. Select each data pad and enter the Local IP, Subnet Mask, and Gateway using the pop-up numeric keypad.



Contact Us

Grass Valley Technical Support

For technical assistance, contact our international support center, at1-971-999-0894 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

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