

Glossary

10Base2 – a coax version of ETHERNET. Uses a 4.9 mm (0.19 inch) diameter, 50-ohm coaxial cable (RG-58) and BNC connectors, but runs at the same speed (10Mb/s) as ETHERNET. The Jupiter system uses this standard between VM/SI controllers and Saturn. It is also used by the original BCS 3000 controllers.

10/100BaseT – an ETHERNET configuration that uses twisted pair wiring (typically Cat 5 UTP unshielded twisted pair cable with RJ45 8-pin connectors) to transmit data up to 100 Mbps.

4000 series – (Saturn) these products are very similar to the Saturn 3000 and 3500 series products but have the “crescent” style front panel.

A board – ES-3000 used for Thomson Automation applications. Now obsolete.

AA board – analog audio processor for Saturn Master Control switcher.

AccuSwitch – control application for CM 4000. Provides interface between Grass Valley Crosspoint Bus routers and certain automation systems, including Thomson Broadcast Automation.

AES – Audio Engineering Society. Internet address: <http://www.aes.org>.

AES3–1992 – AES Recommended Practice for Digital Audio Engineering — Serial transmission format for two-channel linearly represented digital audio data.

AES11 – AES Recommended Practice for digital audio engineering — Synchronization of digital audio equipment in studio operations.

AFV – Audio-Follow-Video. Normal operation of a distribution switcher where selection of a video source automatically selects audio from that source. Example: selection of VTR1 video automatically selects VTR1 Audio 1 and VTR1 Audio 2 as well.

Alamar – manufacturer of broadcast automation systems. Now the Broadcast Automation unit of Thomson Broadcast and Media Solutions.

Ampex bus – see SERIAL BUS.

Andromeda – logical signal processing system developed by Systems group Griesheim. Functions include evaluation of GPIs, tally light control, evaluation of contact closure failure indications from devices such as master control switchers and video servers, and automatic, emergency switching.

AV board – analog video processor for Saturn Master Control switcher.

BCS 3000 – Bosch Control System. Predecessor of Jupiter Facility Control System, originally developed by Bosch Video Systems Division (now part of Thomson Broadcast and Media Solutions). Uses Hewlett-Packard UNIX-based file server. BCS-3000 controller boards include the CE 3000 Matrix Controller, the SC 3000 Serial Control Interface, the PL 3000 Party Line Interface, and the VG 3000 Dual Video Display Status Generator. Most of the functions of these controllers are combined in the VM 3000 Control Processor. Some facility control systems built by BTS combined BCS controller boards with a Jupiter PC file server.

binary super crosspoint bus - similar to super crosspoint bus, but the units digits are allowed to cover the range of 0 to F, rather than 0–9 as in previous switcher systems. Generated only by the Jupiter, CE-2500, and BCS 3000 control systems.

breakaway – independent operation of a switcher level. Same as “split.” Contrasts with normal AFV operation. Example: selecting video from VTR1 but audio from Announce Booth 2.

BTS – Broadcast Television Systems. A joint venture of Bosch and Philips. Now part of Thomson Broadcast and Media Solutions.

bus – in distribution switching, a channel leading to an output or destination. Example: “controls 20 buses” means being able to select sources for 20 destinations.

button-per-input/output control panel – buttons are dedicated to a particular source or destination. As opposed to CATEGORY/NUMBER control.

category/number selection method – operator first picks category (example: VTR); then unit within category.

CE 3000 – Matrix Controller. Interface between LAN and CROSSPOINT BUS. Now obsolete.

chop – rapid, back-and-forth switching between two inputs.

CM 4000 – hardware platform developed as follow-on to VM 3000. Presently available for use with ACCUSWITCH and JUPITER XPRESS applications.

configuration set – a file server directory containing files that are downloaded to CONTROLLER BOARDS. These files are used to establish network addresses, switcher input and output names, types of VTRs in system, etc.

controller board – (1) term used for the interface unit between Jupiter LAN and the RS-422 bus. Includes VM 3000 Control Processor, SI 3000 Control Processor, and VG 3000 Video Display/Status Generator. Also refers to BCS 3000 boards: SC 3000 Serial Control Interface, CE 3000 Matrix Control, and PL 3000 PARTY LINE Interface. In ESBUS terminology, each of these boards functions as a coupler, gateway, and bus controller. (2) Concerto router controller module such as the CRS-MC-C2.

CP 3200 – a Jupiter GUI control panel associated with JNIA. Superseded by the JNS Software Control Panel Suite.

CP 3300 – an X-Y panel, developed by Philips BTS in Germany, with soft keys displaying configured names. The hardware contains 2 lines of 20 characters and displays four character and eight character source and destination names.

CP 3310 – an X-Y panel similar to the CP 3300 that can display status for either five or eight outputs.

CP 3320 – a control panel developed by the Thomson Systems group in Germany.

CP board – control panel for Saturn Master Control switcher.

CPL – Control Point Language. Protocol used in SMS7000 Control System.

crosspoint – distribution switcher circuit where input signal can be connected to output bus. A 10 x 10 crosspoint board has 100 crosspoints.

Crosspoint Bus - Also called the *matrix bus*. A five-pair bus that carries switching and status commands between the crosspoint (matrix) cards in the router and the control device. Used with all switchers developed at the Salt Lake City design center, including Trinitix and Venus.

The control device could be any one of a large number of devices, including a CE-300A Control Board (internal to Mars), a SC 400 Control Board (internal to Venus), a CE 3000 Matrix Controller (BCS 3000 control system), a CE 2500 Control Electronics chassis, a VM 3000 Control Processor (Jupiter), or a CE 2200 (PARTY LINE system).

The protocol for this bus has changed through the years to accommodate larger and larger switchers with increasing numbers of levels, being identified as “standard,” “extended,” “super,” and “binary.” For example, the binary protocol uses binary (rather than BCD) coding to increase maximum control size to 1024 x 1024 on 127 levels.

The “octal” protocol type is used only for Mars switchers.

For additional information, refer to the “Switcher Control Rulebook” appendix of the *Party Line Control Maintenance Manual*, Thomson part no. 04-043473-010.

Crosspoint Bus router – distribution switcher using the Thomson CROSSPOINT BUS protocol. This includes Trinitix, Venus, TVS/TAS-1000/2000/2001/3000, GS-400, SDR-400, and Mars. Also includes Concerto equipped with CRS-MC-C2 Controller Board.

DA board – digital audio processor for Saturn Master Control switcher.

DDE – Dynamic Data Exchange. A form of interprotocol communication that uses shared memory to exchange data between applications.

delegation – use of a special control panel or supervisory display to restrict control of a specific VTR to a particular control panel or panels. The delegation process does not actually connect a control panel to a machine; rather, it allows the connection to be made using the normal machine linkage procedures. See also Linkage.

DHCP – Dynamic Host Configuration Protocol. Provides automatic TCP/IP configuration when a DHCP server is present on the network.

Distributed routing – sending a switch command through a CM 4000, then to a VM 3000, and then to a router.

Doc Pack - packet of information custom-prepared for one switcher.

DVB-ASI - Digital Video Broadcasting – Asynchronous Serial Interface.

downloadable panel – term used with older systems (CE 2200/PARTY LINE technology). Downloadable panels have the ability to change display mnemonics and/or category/number button assignments, from a central computer. This is a standard feature with Jupiter.

DSP – digital signal processor.

Dune – ATM-based digital audio switcher built by LAWO. Discontinued in 2002.

DV board – digital video processor for Saturn Master Control switcher.

DVS – (Philips) Digital Video Systems. Successor to BTS. Now part of Thomson Broadcast and Media Solutions.

EBU – European Broadcasting Union. Internet address: <http://www.ebu.ch/>.

ES 400 – A term used in Thomson technical publications to denote the original asynchronous (non-reclocking) version of the Venus digital audio switcher matrix board and associated components.

ES 401 – A term used in Thomson technical publications to denote the new AES11 synchronous/asynchronous version of the Venus digital audio switcher matrix board and its associated components.

ES 3000 ESnet Interface Circuit Card – Ethernet board used in PC compatible computers. No longer available.

ESbus – nickname for EBU/SMPTE RS-422 bus protocol for remote control of television production equipment using a full-duplex four-wire, asynchronous serial, 38.4 kbits/s digital channel. Connectors are 9-pin D. Incorporates ANSI-SMPTE 207M and Recommended Practice 113. The Jupiter Serial bus is designed to be compatible with ESbus; however, the serial data cable supplied by Thomson uses only 5 conductors. (In Jupiter systems, “ESbus” usually refers to VTR control.)

ESbus Routing Switcher Protocol – used for control of a routing switcher with a third-party computer operating according to the proposed ESBUS routing switcher dialect. Also referred to as ESCONTROL protocol. Uses logical input and output numbers to identify crosspoints.

ESbus Tributary protocol – (a.k.a. “ESTR” and “ES-trib”). Full tributary ESbus automation protocol, compliant with SMPTE EG 29-1993, and all associated normative references. The protocol supports all standard bit rates from 300 to 115.2 kbps. Flow control is an advantage with this protocol.

EScontrol – control of a “remote” (serial control) routing switcher using proposed ESBUS ROUTING SWITCHER PROTOCOL. Also referred to as “ESbus Router” protocol.

ESnet – nickname for EBU/SMPTE proposed protocol for remote control of television production equipment based on THIN NET.

ESphysical – (a.k.a. “ESP”). Used for control of a routing switcher with a third-party computer operating according to the proposed ESBUS ROUTING SWITCHER PROTOCOL. Uses physical input and output numbers to identify crosspoints.

ESswitch protocol – (a.k.a. “ESW”). Protocol used for Jupiter control of a routing switcher by a third-party computer. It is described in Thomson document “ESswitch Serial Routing Switcher Control Protocol, Enhanced Version.” This is a simplified version of the ESBUS ROUTING SWITCHER PROTOCOL. This protocol operates in a “pre-selected” mode, and no polling or flow control is implemented.

Ethernet – a high speed (10–100 Mbit/s) LAN technology that evolved into the IEEE 802.3 LAN standard. Uses a relatively heavy 10.3 mm (0.4 inch) diameter, 50-ohm coaxial cable.

exclusion – lockout of selected inputs from selected outputs. Example: lockout of a test signal from bus leading to transmitter.

extended party line – see PARTY LINE.

extended crosspoint bus – see CROSSPOINT BUS.

fabric board – DM-33100 matrix board used in Trinitix router.

file server – a computer dedicated to providing access to a hard disk on a LAN. In Jupiter systems, the PC that holds the Jupiter installation with the active set.

follow switch – a switch made automatically on one level in response to a switch made by the operator on another level. See also AFV, REVERSE SWITCHING.

force unprotect/unlock – a system management function that allows a new source to be selected for a protected or locked destination. See LOCK, and PROTECT.

FPGA – Field Programmable Gate Array.

full-matrix control – ability to select any source for any destination.

gateway – a device for connecting two dissimilar networks.

GUI – Graphical User Interface. In Jupiter systems, a “software” control panel that exists only as a CRT display.

hardware address – another name for the link level address, a unique identifier required for every device that operates on a network (for example, 08000090acf6 [hex]). Compare with TCP/IP ADDRESS.

HTTP – Hypertext Transport Protocol.

ICS – Integrated Control System. Original name of BCS 3000 and Jupiter Control Systems. “ICS” also refers to a control system developed by Philips BTS Darmstadt.

indirect status instruction – see PRIMARY STATUS INSTRUCTION.

interface bus – an ESBUS term for the channel that connects VTRs, control panels, bus controllers, etc. Uses 9-pin D connectors (but Thomson version uses only 5-conductor cable). See SERIAL BUS.

IP – see TCP/IP.

JNIA - Jupiter Network Interface Application. A program that supported operation of a Logger, Log Viewer, Party Line Download software, Physical Control (Switching), CP 3200, and Force Unprotect/Unlock. Superseded by JNS.

JNS - Jupiter Network Suite. A collection of many programs designed as a replacement and enhancement to the JNIA software. Includes the Router Save/Restore Utility, Physical Diagnostic Utility, Physical Remapping Utility (PRU) and the I/O Editor. The JNS also includes all the JNS SERVERS, Board Status Display, Router Control Utility, JNS Logger, JNS Log Viewer, Force Unlock, Physical Control, and Party Line Download.

JNS Servers – JNS programs that provide data to Jupiter client programs in the same or other computers.

Jupiter - compact, follow-on version of BCS 3000 CONTROL SYSTEM. A PC-type computer is used as the file server.

Jupiter XPress - Provides a limited set of Jupiter switching and machine control functions using the CM 4000 as the interface between Thomson crosspoint bus routers and certain control devices.

Lawo AG – audio equipment manufacturer based in Rastatt, Germany. Supplier of components for Dune Digital Audio Switcher.

level – historically, a switcher matrix that carries one type of signal, as determined by DIP switch settings on crosspoint boards. Example: level 1 for video, levels 2 and 4 for left and right audio, etc. However, in 3-stage switching systems this switch-set level is referred to as the “physical” level; and large systems may require more than one physical level to provide enough hardware for an entire “logical” level (such as video). The Jupiter Physical Switching menu refers to a “logical level” that is actually the logical level *number*; this being the row number on which the level is identified on the Switcher Level Descriptions table. The logical level *name* also appears on this table.

linkage – the Jupiter machine assignment function, whereby control of a VTR is passed to a remote panel. The system can be configured so that linkage will occur automatically, based on the signal from the VTR being switched to a destination associated with that panel; this function is sometimes described as “machine control following the router.” Linkage can also be accomplished manually, using the MC-3020L Linkage panel. See also DELEGATION.

Little Cloud – engineering project name for JUPITER XPRESS product.

lock – 1. on Jupiter control panels equipped with a LOCK button (except MC 3020L): after a given source has been switched to a given destination, and LOCK is pressed, the source for that destination can then be changed only at the panel which set the lock; *and* only after LOCK is pressed again. Note that a panel can only lock LEVELS that are assigned to the panel during configuration. See PROTECT, and FORCE UNPROTECT/UNLOCK. 2. on the MC 3020L Linkage panel, the LOCK button is used to prevent any interruption in the assignment of a machine to a control panel.

logical level mapping - in these systems, the same physical level number can be used on more than one logical level. For example, you could have a switcher with Left Audio on level 2, and with Right Audio **also** on level 2. This technique can sometimes help reduce overall switcher size, but it requires special entries to control system tables.

logical level name – see LEVEL.

logical level number – see LEVEL.

logging – maintaining a disk file of Jupiter LAN activity, including switches, machine control commands, configuration set downloads, error messages, etc. Each file covers a twenty-four hour period.

LOS – Loss of Signal.

MADI – Multiplexed Audio Digital Interface. Interface bus used in Dune switchers.

matrix bus – see CROSSPOINT BUS.

M board – CE 3000 Matrix Controller. Now obsolete.

MDI – Multiple Document Interface.

Media, Networking, and Control – see MNC.

MIDI – Musical Instrument Digital Interface. Serial interface bus used in Triton switchers.

MNC – Media, Networking, and Control. Unit of Thomson Broadcast and Media Solutions responsible for design of switching products.

mnemonic – abbreviation, usually four characters long, for a particular input or output. Mnemonics appear in the LED status windows of the control panels. However, the term is sometimes used to define an input or output in the sense of a logical device name.

MPK – message-per-keystroke. Protocol developed by Thomson for control panels and devices connected to the Jupiter Serial bus. Baud rate is variable, with 8 data bits, 1 start bit, 1 stop bit, and even parity; timeout is 6 characters (1.72 msec). See also SERIAL BUS.

NetBEUI – NETBIOS Extended User Interface. Windows for Workgroups ships with the NetBEUI protocol to interconnect computers running Windows for Workgroups, MS-DOS, Windows NT, and Microsoft LAN Manager-compatible networks, in a local area network environment. NetBEUI is a small, efficient protocol designed for use on a departmental LAN of 20 to 200 workstations. For enterprise-wide networks where a routable protocol is required, TCP/IP or IPX should be used.

NetBIOS – Network Basic Input/Output System. An operating system interface for application programs used on IBM personal computers that are attached to a LAN.

node – a device on a network, such as a controller board, control panel, file server, or VTR.

numeric mode – switcher selection method using input and output numbers only (as opposed to category/number mode).

numeric set – a factory-supplied configuration set used to set up and operate the routing switcher in the minimum possible time.

override – one-button selection of an input. Override button of a control panel is programmed to select a particular input that is used heavily.

output monitoring – feature of routing switcher which allows control system to verify switcher performance without interrupting normal operations. A separate, internal switching system is used to switch the Monitor Output to any *output* of the switcher.

party line – proprietary network technology originally developed by TELEMATION, Inc. to control distribution switchers. Uses unterminated 75-ohm coaxial cable from CE 2200 or PL 3000 looped through all control panels. Not to be confused with 50-ohm THIN NET technology used in Jupiter. Two types are commonly in use: the *extended* party line, which allows control of 250 inputs and 150 outputs; and the *super* party line, which allows control of 250 inputs and 250 outputs.

path finding – a switching technique allowing two or more TVS/TAS–2000 or later routing switchers to operate as a system, where each switcher can access the other’s inputs through a number of *tie lines*. Because the tie lines are limited, the path will be *blocked* when all lines are busy. Not to be confused with THREE-STAGE SWITCHING.

PCI – Peripheral Component Interconnect, a local computer bus standard developed by Intel Corporation. Most PCs include a PCI bus in addition to a more general ISA expansion bus.

Philips Broadcast – successor to Philips Digital Video Systems (DVS). Now part of Thomson Broadcast and Media Solutions.

physical level – see LEVEL.

PL board – PL 3000 Party Line Interface. Now obsolete.

PMEM – battery-protected memory.

polling – communication technique where central controller polls (addresses) each device on a party line in turn. When so addressed, a particular device can then send or receive data without being interrupted.

polling name – a unique address assigned to a switcher control panel. When transmitted by the polling and control card, allows communication between that panel and the switcher matrix.

PPM – peak program meter.

protect – on Jupiter control panels with a PROTECT button: after a given source has been switched to a given destination, and PROTECT is pressed, the source for that destination can then be changed only at the panel which protected the output. Note that a panel can only protect LEVELS that are assigned to the panel during configuration. See also LOCK, and FORCE UNPROTECT/UNLOCK.

primary status instruction – in Jupiter systems, a configuration technique used in the CP Input set for display of SPLIT MNEMONICS. Indirect (“I”) entries are used to point to a primary (“P”) entry. The primary entry in turn points to the desired mnemonic for that level.

RCI – Router Control Integration. Internal name for Salt Lake City–Nevada City router control integration engineering project.

RCMC – Routers, Control, and Master Control business unit. Now referred to as MNC.

refresh – continuous repetition of switching instructions and confirmation of crosspoint status. Reports any interruption of service — for example, if crosspoint board is removed. When board is replaced, automatically restores previous switch instructions.

repeater – a device for connecting two LAN segments.

remote PC – a PC on a Jupiter LAN in addition to the PC used as the file server. Can be used for auxiliary tasks such as remote LOGGING.

remote switcher – a non–Thomson distribution switcher under Jupiter control.

retained level – see STICKY LEVEL.

reverse switching –reverse switching is used in RS–232/422/423 data switchers where one level is used to switch data from a controlling device (such as an editor) to a controlled device (such as a VTR); a second level is used to return data to the controller. The return path is switched automatically by the control system.

RS–422 – EIA standard which defines the electrical characteristics of balanced voltage digital interface circuits. More rugged than the earlier RS–232 standard, which employs unbalanced voltages. This standard does *not* specify a connector type. While the Jupiter VTR / control panel bus and CC 2010 matrix (crosspoint) bus are both based on the RS–422 standard, the VTR / control panel bus uses 9–pin D connectors and the CC–2010 matrix bus uses 15–pin D connectors.

RS–422 bus – see SERIAL BUS.

S board – SC 3000 Serial Control Interface. Now obsolete.

salvo – single–command switching of source(s) to multiple destinations.

SCP – Software Control Panel.

segment – a portion of a LAN. In 10BASE2 systems, a segment is limited to 185 meters and 30 nodes. However, segments can be joined by repeaters.

sequencing – term used in connection with Jupiter for single–command switching of one or more sources to one or more destinations. With a CP 3000 switcher control panel, each named sequence can contain up to 25 switching events.

serial bus – term used in connection with Jupiter for the interface bus that connects VTRs and control panels to a controller board such as a VM 3000. Depending on how the bus is configured by software, may also be referred to as Sony bus, Ampex bus, ESBUS, MPK bus, RS–422 bus, etc.

server – 1. Hardware: a computer that provides shared services to other computers over a network; e.g., a file server. 2. Software: a program that provides data to client programs in the same or other computers. In Jupiter systems, a “JNS server” (software) is said to run on a “file server” (hardware).

set – see CONFIGURATION SET.

single–bus control panel – selects any source for 1 destination.

SMPTE – Society of Motion Picture and Television Engineers. URL: www.smpte.org.

SMPTE 259M–1997 – Television standard: “10–Bit 4:2:2 Component and 4fsc Composite Digital Signals – Serial Digital Interface.”

SMPTE 269M–1999 – Television standard – “Fault Reporting in Television Systems.”

SMPTE 274M–1998 – Television standard: “1920 x 1080 Scanning and Analog and Parallel Digital Interfaces for Multiple Picture Rates.”

SMPTE 292M–1998 – Television standard: “Bit–Serial Digital Interface for High–Definition Television Systems.”

SNMP – Simple Network Management Protocol.

Snowbird – engineering project name for JUPITER XPRESS product.

Sony bus – see SERIAL BUS.

SPD – signal presence detector.

SPDIF – Sony/Philips digital interface.

split – see BREAKAWAY.

status – in a distribution switcher, a display indicating what source is currently switched to a given destination.

sticky levels – control panel BREAKAWAY operation during which the selected LEVELS remain selected after a Take.

Sundance – engineering project name for CM 4000/ACCUSWITCH.

super crosspoint bus – see CROSSPOINT BUS.

super party line – see PARTY LINE.

TCP/IP – a protocol suite allowing error–free communication over an arbitrary network. TCP/IP is an abbreviation for ‘Transmission Control Protocol / Internet Protocol.’ This set of protocols is more properly called “the Internet Protocol Suite,” but is commonly named TCP/IP since TCP and IP are the two main protocols used by Internet network services.

TCP/IP address – a computer address consisting of four decimal integers separated by periods. Each integer represents eight bits of an IP address. Compare with **HARDWARE ADDRESS**.

TCS 1 –TELEMATION Control System. Predecessor to BCS 3000 and Jupiter. TCS 1 provides machine control only (no switcher control).

TCS 2 – control panel protocol used with the MCS 2000 Master Control Switcher. Contains byte counts, check sums, and error detection. Replaces the TCS CP interface but not the TCS MI interface. TCS2 can only be used with the MCS 2000, which must be equipped with updated PROMs.

TeleMation – Salt Lake City manufacturer of CATV and broadcast equipment founded by Lyle Keys and associates in 1963. Now part of Thomson Broadcast and Media Solutions.

three–stage switching – architecture used for very large switchers as a means of reducing crosspoints needed for a given number of inputs/outputs. An array of relatively small matrixes is arranged in an input stage, an intermediate stage, and an output stage. The path taken by a given signal through these stages is determined by software and will vary according to which circuits are already in use. Unlike **PATH FINDING** between two discrete switchers, three–stage switchers are carefully designed so that all inputs are always available at all outputs; i.e., the switcher cannot be *blocked*.

tie line – see PATH FINDING.

tributary – term used in ESBUS documentation for an intelligent device (such as a VTR or control panel) connected to an ESBUS.

VDE – Verband Deutscher Electrotechniker e.V. (Union of German Electrical Engineers). Professional organization in Germany authorized to conduct product safety tests.

VITC – Vertical Interval Time Code, embedded in the vertical interval of the video signal.

VGA Status Display – built-in switcher and machine control status display feature of the VM 3000. Can be controlled by front-panel buttons or with optional VC 3020 panel.

VM 3000B – VM 3000 with minor electrical changes and “crescent” style front panel. Functionally identical to VM 3000.

WPE – serial device type designation used for SPQ 3A frequency response equalizer connection to VM 3000.

XPT – crosspoint.

X–Y selection method – full-matrix control of switcher, where source is described as (x) and destination is described as (y).

Y line – in an editing environment, some VTRs can act as controllers *or* tributaries. These can be connected with a “Y” cable to two switcher ports— one for use when the VTR is a controller, the other when the VTR is used as a tributary. If the VTR is operated only as a controller, or only as a tributary, then a “Y” cable will not be needed.

ZIF – zero insertion force.

Zion – engineering project name for Jupiter “Configurator,” an enhanced, “Windows-like” editor introduced with Jupiter 6.1.