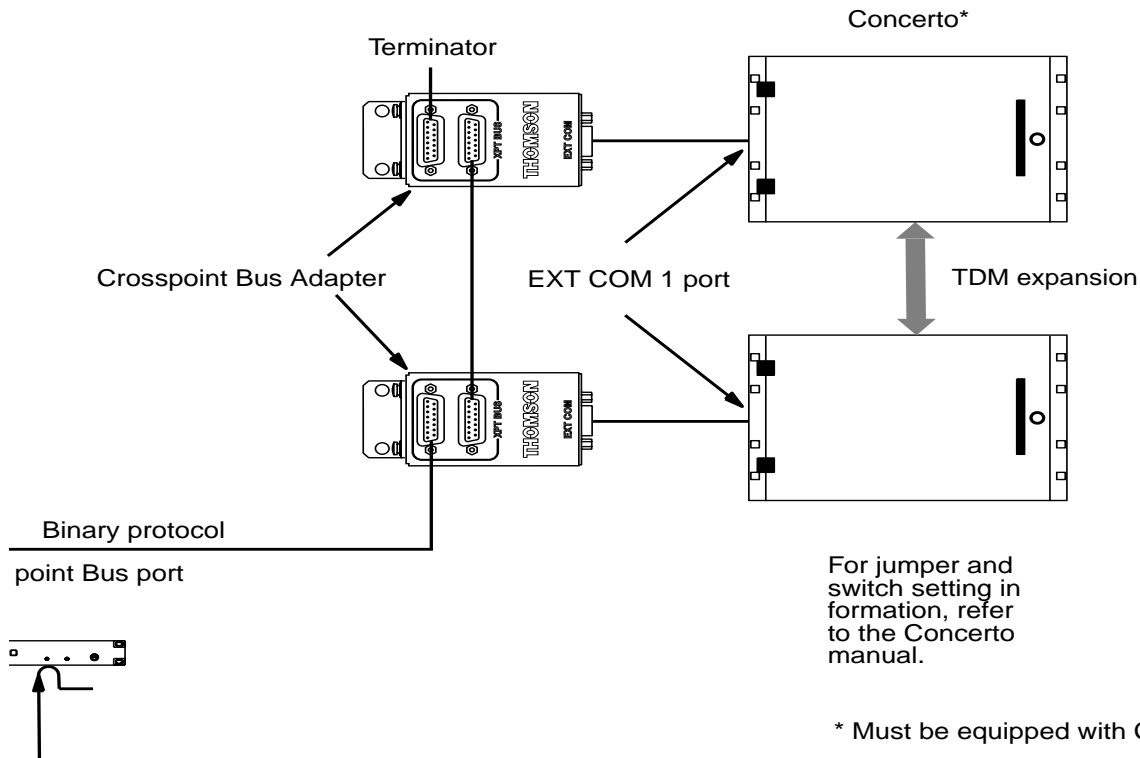*Field Engineering Bulletin*
075-0722-00 | Rev. - | September 29, 2003

Jupiter Crosspoint Bus Control of Concerto Flexframe Routing Matrix

Purpose

This document describes the hardware connections, Jupiter configuration requirements, and special stereo switching modes when the Jupiter Crosspoint bus is used to control a Concerto router.

Figure 1.

Concerto*

Terminator

Crosspoint Bus Adapter

EXT COM 1 port

TDM expansion

Binary protocol

point Bus port

For jumper and switch setting in formation, refer to the Concerto manual.

* Must be equipped with CRS-

Hardware Connections

A Jupiter VM-3000 or CM-4000 System Controller can be connected via a Thomson Crosspoint bus to the Concerto **EXT COM 1** port (to communicate with the Controller in Slot 1) or **EXT COM 2** port (to communicator with the Controller in Slot 2). One connection can be used as a primary connection and the other can be used as a redundant connection. See Figure 1.

A Crosspoint Bus to Concerto Adapter Box (part no. 610-0995-00) is required. This adapter has a looping 15-pin D female connector for the Crosspoint bus and a 9-pin D female connector for connection to an interface cable leading to the EXT COM port. A factory-built interface cable is available from Thomson; part no. 174-8185-00.

The looping Crosspoint Bus should be terminated using a Thomson Crosspoint Bus Terminator, part no. 01-053050-001.

The Adapter Box is designed to be bolted to the Concerto chassis or to a rack frame.

Hardware configuration

The Concerto must be equipped with CRS-MC-C2 Matrix Controller board(s) for Jupiter control. Switch settings for this board are described in Section 3 of the Concerto manual under "Serial Controller Settings." The part number for the CRS-MC-C2 Matrix Controller board is 671-6495-00.

There are specific requirements for Concerto board arrangement when the CRS-MC-C2 Matrix Controller is installed. For details, please refer to Section 1 of the Concerto manual under "Optimum Matrix Configurations."

In most cases, the Concerto should be operated in Stereo mode. This will allow "stereo mode" switching (such as "mix," "swap," etc.). Mono mode is also available.

No special switch or jumper settings are needed for the Jupiter VM/CM.

Jupiter Configuration

The Concerto matrix is configured as a standard crosspoint bus control router using the Switcher Description and Switcher Input/Output tables.

Switcher Description table

Switcher Name

If there is more than one Concerto router in the system, each must be given a unique name on this table. Expanded (TDM) routers are considered to be one router for this purpose.

Level Name

Each level within a given router must have a unique name. Example level names are

- For analog or digital video: "VIDEO."

- For analog audio: "LEFT" and "RIGHT."

- For digital audio: the default (and recommended) arrangement is to define a separate level for each signal. This will allow "stereo mode" switching such as "mix, "reverse." etc. For example, the stereo pair "AES 1" and "AES 2" would be entered as two levels.

- For data routers: only one level is defined. (This is similar to the later-model DM-400B Venus data router configuration.)

Board

Enter the name of the VM/CM as defined on the Network Description table.

#In / #OUT

Enter the size of each level in these columns. To enable monitoring, the number of outputs is incremented by 1. For example, for a 128 x 128 video level the size would be entered as "128 inputs" and "129 outputs."

The Jupiter control system uses output "129" to access the monitor port. For example, to monitor the signal on output 10 of the Concerto, the operator would select "output 129" and "input 10."

PLvl (Physical Level Number)

Each level within a Concerto router must have a unique physical level number. This number is determined by switch settings on the CRS-MC-C2 controller board (as described in Section 3 of the Concerto manual under "Serial Controller Settings.").

As a convention, Jupiter-controlled systems have the following physical level numbers:

- Analog video: 1
  Digital video (SD): 7
  Digital video (HD): 9

- Analog audio left (A1): 2
  Analog audio right (A2): 6
  Analog audio A3: 8
  Analog audio A4: 12

- AES digital audio: 32 (applies to all modes of Concerto AES switching)
  AES digital audio (right/AES 2): 36 (applies to right channel of Concerto AES when operated in stereo mode)

- Time code (mono): 3

- Data transmit/receive: 16

Note   For analog audio left levels, and for digital audio levels, the binary form of the physical level number cannot have the 4s bit set to 1; e.g., decimal "2" (binary 00000010) can be used for analog audio left but decimal "4" (binary 00000100) cannot. This means that the following decimal numbers cannot be used: 4 through 7, 12 through 15, 20 through 23, 28 through 31, 36 through 39, 44 through 47, 52 through 55, 60 through 63, etc.

Note   The analog audio right level number must be the left number + 4.

Driver

For data routers, select **DM 400B** as the Driver type. For all other routers, select **Binary.**

Audio

To enable stereo mode switching, select "Left" and "Right" for the appropriate levels.

Switcher Input and Output tables

Concerto connector numbers are incremented by "1" compared to Jupiter numbers. E.g., although the rear-panel connectors on Concerto routers begin with "1," the physical input/ouput number for this connector, as entered on these Jupiter tables, is "0."

For more information on the Jupiter Control System configuration,refer to the *Jupiter Getting Started Guid*e, and the *Jupiter Installation and Operating Manual*.

Stereo Switching Modes

Stereo switching modes are shown in Figure 2.

Figure 2.
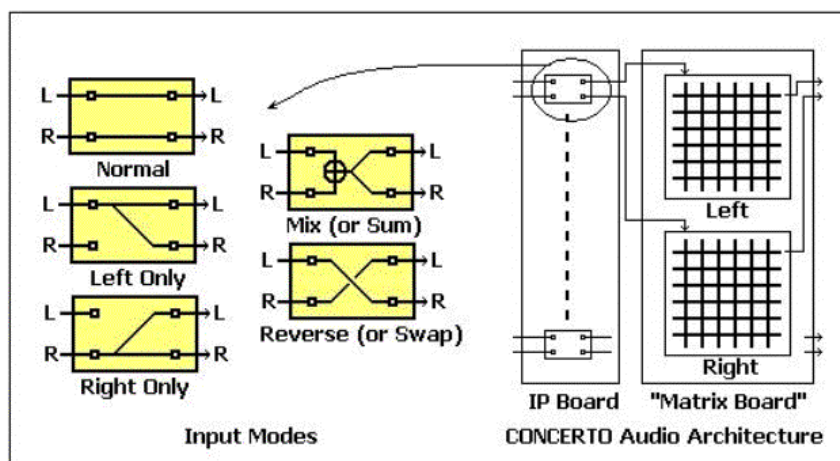
The five input modes are executed at the input of the switcher, i.e., upstream of the matrix. Since "breakaway" switching occurs in the matrix, a combination of stereo mode switching and breakaway switching will result in the breakaway selection having priority. For example, if a "left only" stereo mode is selected, but then a breakaway is also selected for the right channel, the breakaway signal will override the stereo mode selection and appear on the right channel at the switcher output.

Internal A-D / D-A Audio Conversion

Concerto analog audio routers include internal A-D and D-A conversion circuits. When a router is equipped with complementary analog and digital audio boards all signals are available in both analog and digital form. For example, if the system includes one 32 x 32 analog audio board and one 32 x 32 digital audio board, and analog input "1" is connected to the analog board, then that signal will remain analog when switched to output 1 through 32; but it will automatically emerge in digital form when switched to output 33 through 64.

Analog devices are therefore wired to the analog board and digital devices wired to the digital board. All necessary conversions will then take place in the background without special configuration or operating procedures.

For the example video system just described, the Jupiter Switcher Description table would define one 64 x 64 level. In the case of an audio switcher, and when stereo switching modes are desired, the Jupiter Switcher Description table would have two entries: one 64 x 64 switcher as a left level (e.g., level 32) and another 64 x 64 switcher as a right level (e.g., level 36).