



CB Electronics

XPand

8 Channel Monitor Expansion

User Guide

Provisional





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Introduction

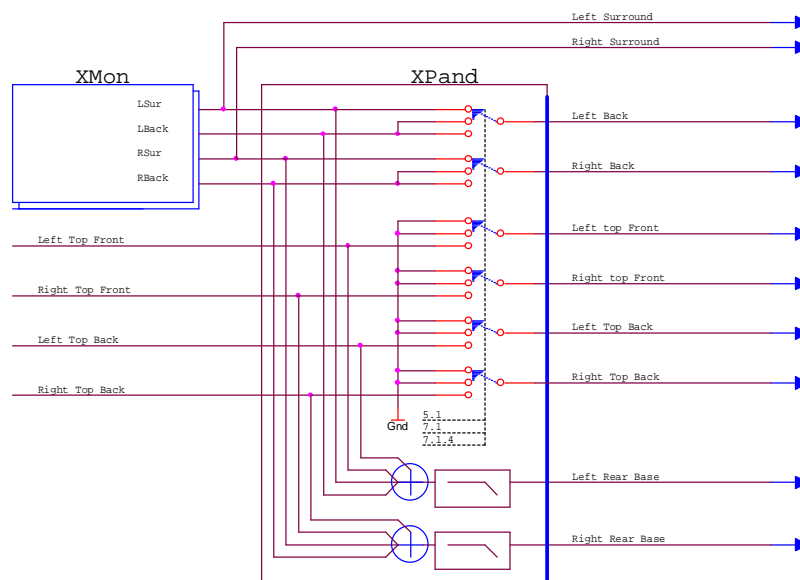
The CB XPand converts a 7.1 XMon or A-Mon system to a 7.1.4 or 9.1.2 ATMOS system by adding 8 extra channels to your existing system.

XPand provides up to 8 channels in the main input and output path of the XMon or A-Mon. Where only 4 channels are required the XPand can be used to switch the rear surround to side when switching from Atmos/7.1 to 5.1.

Features

- Connects in parallel with the Avid XMon via 15 pin VGA cable and converter box (Both are included with the XPand).
- Connects in parallel with the Avid XMon via 15 pin VGA cable (Included).
- Can be controlled from Avid ICON console Monitor Section
- Fully supported by XPAND Monitor Controller
- Two modes:- 8 Channel, 4 Channel (7.1.4, 9.1.2)
- 4 Channel Mode: Switch Rear speakers to side in 5.1
- 4 Channel Mode: Surround Bass Extension outputs

Block Diagram of a 7.1.4 System with XMon 7.1/5.1 switch and Surround Bass Extension



This guide will introduce the XPand with examples and illustrations

Further information, the XPAND Reference manual and software upgrades can be found at www.colinbroad.com/cbsoft/amon/XPand.html

Front Panel Controls



The XPand front panel has the following control and indicators

- **Power LED:** On when connected to Power
- **Mute LED:** On when Hardware Mute is activated and ALL inputs and outputs are muted
- **Comms LED:** Indicates communications received from TMC-1. When key is depressed or the knob is turned the LED will flash as the commands are received, otherwise the LED will flash about once a second.
- **Mute Switch:** Enable/Disable Hardware Mute, the Mute and Unmute command from the remote will also disable the Hardware Mute.

Connections



The XPAND rear connectors

- **Power:** IEC 85-230v Input with 325mA fuse
- **8 Balanced Inputs** on 25 pin 'D'
- **8 balanced Outputs** on 25 pin 'D'
- **A-Mon/XMon:** HD15
- **TMC-1:** HD15, when used with XMon a converter is supplied.
- **USB:** Software updates and configuration setting. The USB is also used when controlled from the ICON to set up XPand and to calibrate the outputs using the TMC-1-Win/Mac App.

Installation

XPand is housed in a 1U Rack Mount box, The 1U mounting ears are shipped with the unit and attached with M5 CSK screws.

XPand should be mounted next to the A-Mon or XMon, a 1 meter VGA cable is included to connect between the two units. The connections will depend on if the original XMon cable is used. Please specify the cables used when ordering so that the appropriate converter box may be included.

Setting XPand Internal links

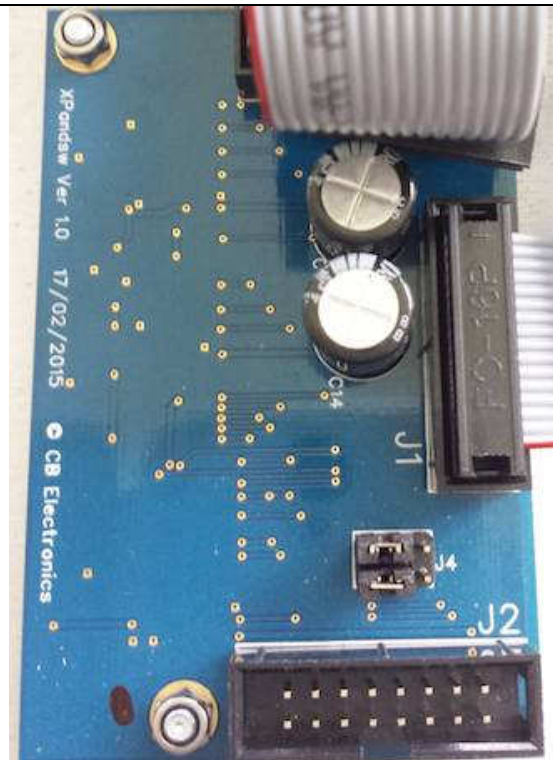
Surround Bass Extension

Two internal links are used to select outputs 5 and 6 between inputs 5&6 or the sum of the left and right surround channels followed by a low pass filter to provide left and right surround bass extension outputs. If you wish to use the surround bass extension option on XPand you must reposition two links within the Unit and set the XPand configuration. The images below show the positions of these links.

Surround Bass Extension

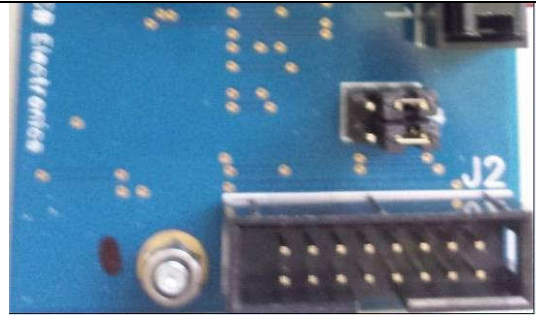
Default: No Surround Bass Extension

J4 Links to the Left, away from board edge



Surround Bass Extension Enabled

J4 Links to Right – Towards board edge



Once the Links have been set the appropriate flag must be set in the Xpand software using the TMC-1 support program on Mac or Windows via the USB Port.

Default: No Surround Bass Extension

The screenshot shows the TMC-1 v5 software window with the 'XPand' tab selected. The 'Speaker Names' table is as follows:

XPandI	Name	Trim	Mute
XPand 1	Xpand-1	0dB	<input type="checkbox"/>
XPand 2	Xpand-2	0dB	<input type="checkbox"/>
XPand 3	Xpand-3	0dB	<input type="checkbox"/>
XPand 4	Xpand-4	0dB	<input type="checkbox"/>
XPand 5	Xpand-5	0dB	<input type="checkbox"/>
XPand 6	Xpand-6	0dB	<input type="checkbox"/>
XPand 7	Xpand-7	0dB	<input type="checkbox"/>
XPand 8	Xpand-8	0dB	<input type="checkbox"/>

The 'XPand Controls' section shows 'Stereo', '5.1', '7.1', and 'Atmos' buttons. The 'XPand Config' dropdown is set to '8 Channel'. The 'Output 5 and 6 Links' dropdown is set to 'Normal'. A 'RearSW' button is not visible.

Surround Bass Extension Enabled

The screenshot shows the TMC-1 v5 software window with the 'XPand' tab selected. The 'Speaker Names' table is identical to the previous screenshot.

The 'XPand Controls' section shows 'Stereo', '5.1', '7.1', and 'Atmos' buttons. The 'XPand Config' dropdown is set to '8 Channel'. The 'Output 5 and 6 Links' dropdown is set to 'Surround Bass Extension'. A green 'RearSW' button is now visible.

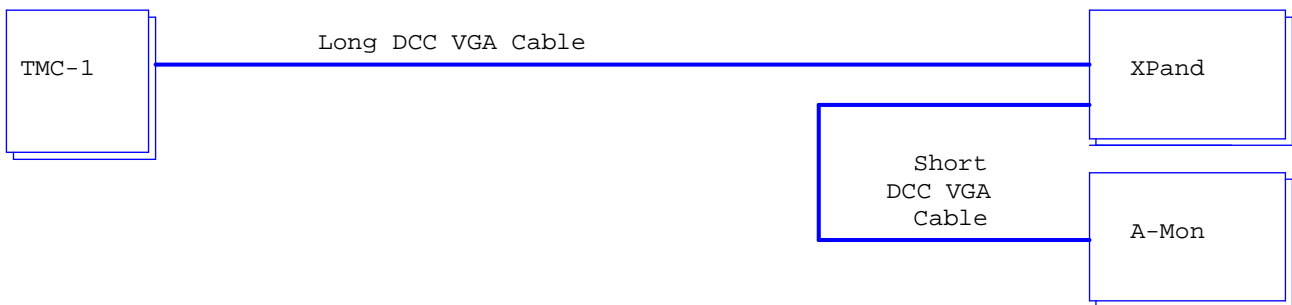
7.1 to 5.1 Switching

The XPand provides surround switching between Atmos, 7.1 and 5.1. When switching from 7.1.4 to 5.1 the rear surrounds speakers are connected to the side surrounds. When switching from 9.1.2 to 7.1 the front side speakers are connected to the side surrounds. When switching from 9.1.2 to 5.1 the rear surrounds are connected to the side surrounds.

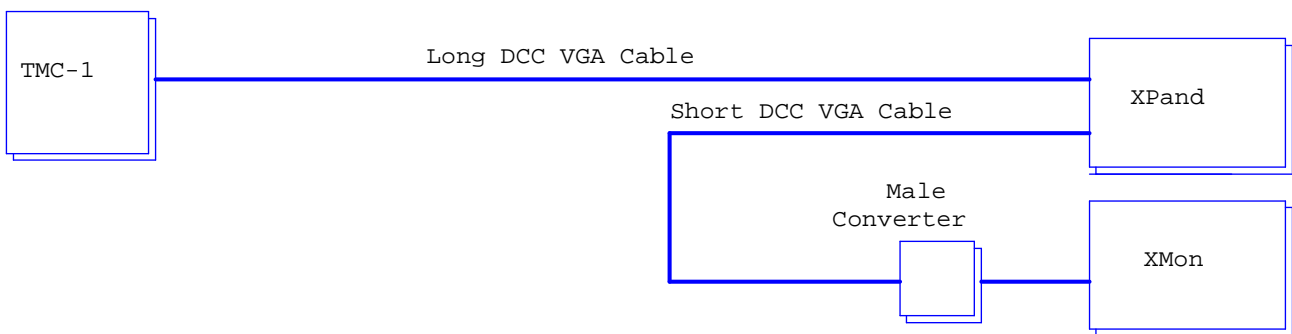
Connecting TMC-1 or Icon to XPand with A-Mon or XMon

XPAND uses a VGA connector for the remote. The XPAND is supplied with a converter box to allow easy connection to the X-Mon 15 pin 'D'. When ordering please advise the system setup so that we can supply the correct converter.

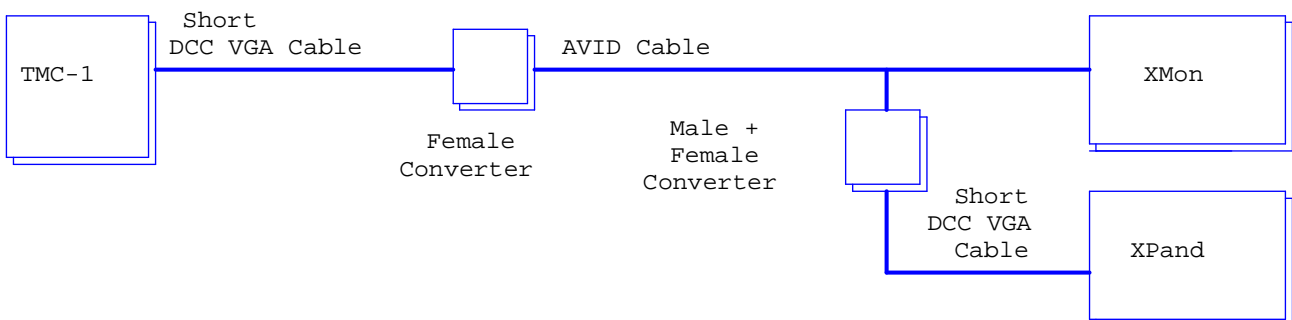
TMC-1 to XPand and A-Mon with VGA cable



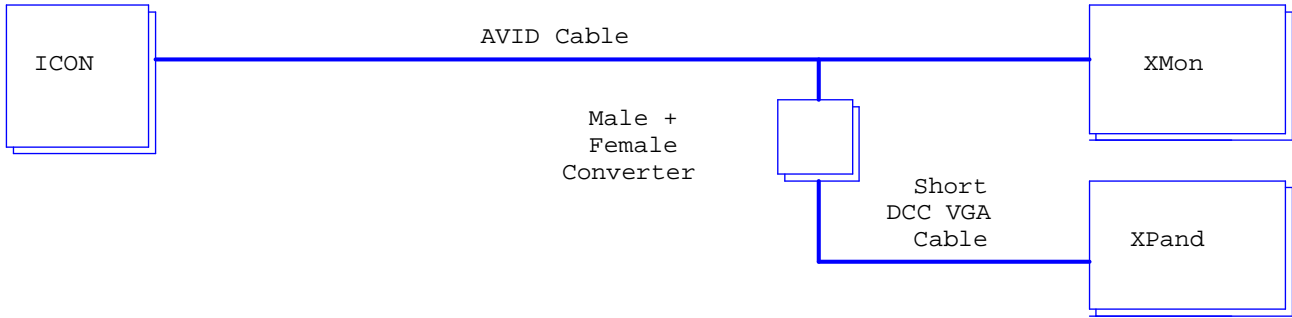
TMC-1 to XPand and XMon with VGA cable



TMC-1 to XPand and XMon with AVID Cable



ICON to XMon and XPand with AVID Cable



Male+Female Converter



Operation

The extra XPand channels are enabled when the Main Input is routed to the Main Output and adds up to 8 extra channels. The XPand level control will follow the Master Gain control.

From the TMC-1

Speaker Solo, Mutes and trims are controlled directly from the TMC-1, The XPand format is enabled in the TMC-1 advanced setup.

Setup: Adv Menu 23 XPand Surround Format Selector

The XPand format may be set via the USB port or from the XPand

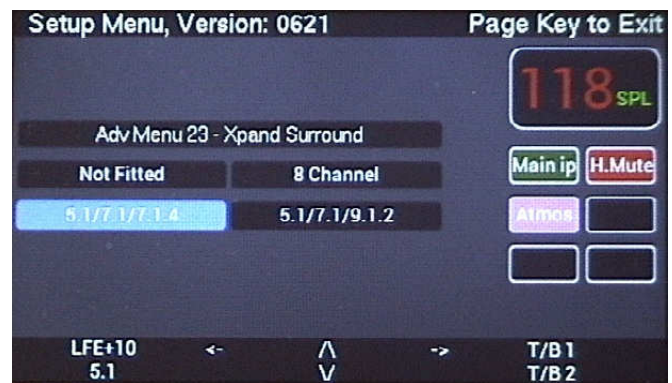
8 Channel: All 8 channels are used with a common gain control and individual Mute and Gain trim

5.1/7.1/7.1.4 or 51./7.1/9.1.2:

Channels 1-4 are used for the Atmos Speakers

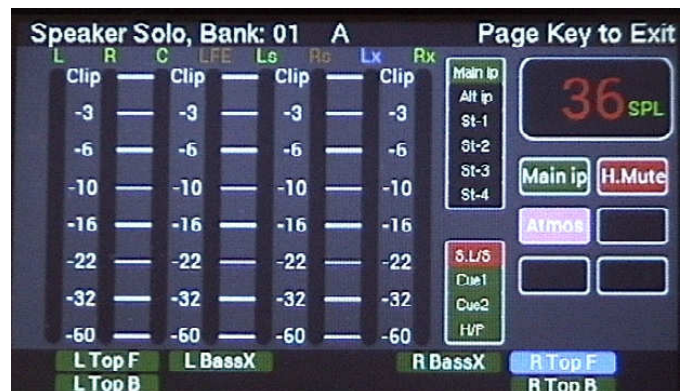
Channels 5 & 6 ate used for L/R Surround or L/R rear bass extension

Channels 7 & 8 are used for the L/R Rear surround.



Solo or Mute Page:

The Depressing the Solo or Mute key will switch between the banks to Display the XPand channels



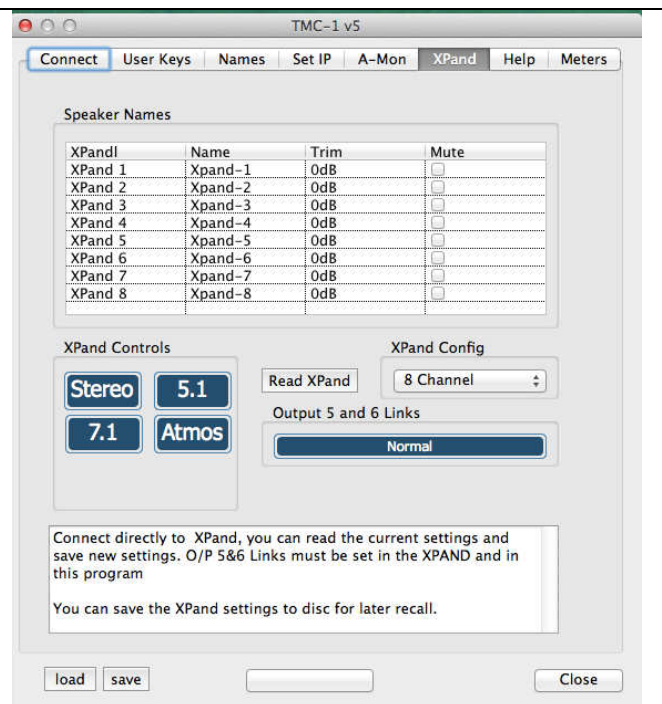
Adv Menu 23 – Xpand Surround	Xpand User Keys When Main input and Output selected	
8 Channel	Atmos	Enable All Xpand Outputs
	7.1/5.1	Disable All Xpand Outputs
	RearSW	No Action
5.1/7.1/7.1.4	Atmos	Enable Top Speakers
	7.1	Disable Top Speakers
	5.1	XMon: XPand connect Lb to Ls and Rb to Rs A-Mon: Not Required
	RearSW	Enable/Disable Rear Base Extension in Atmos Mode
5.1/7.1/9.1.2	Atmos	Enable Top Speakers and Lw, Rw
	7.1/5.1	Disable Top Speakers, connect Lw to Ls and Rw to Rs
	RearSW	Enable/Disable Rear Base Extension in Atmos Mode

From ICON

The XPand App on Mac/Windows provides the following functions

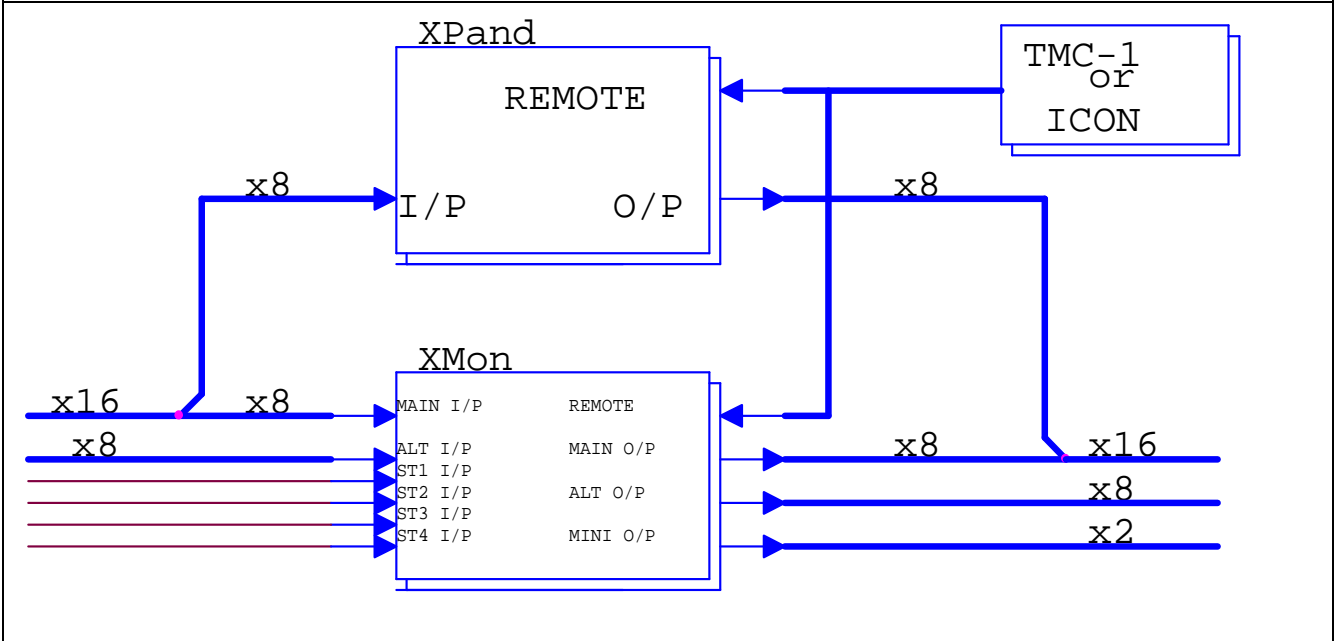
1. Select between 8 Channel, 7.1.4 and 9.1.2
2. Mute Outputs
3. Switch between Atmos, 7.1, 5.1 and Stereo
4. Enable/Disable Surround Bass Extension

Trim speaker Outputs by +/-4dB in 0.5dB steps



XPand External connections - 8 Channel Mode

In 8 channel mode up to 16 channels are controlled with individual speaker trim solo and mute



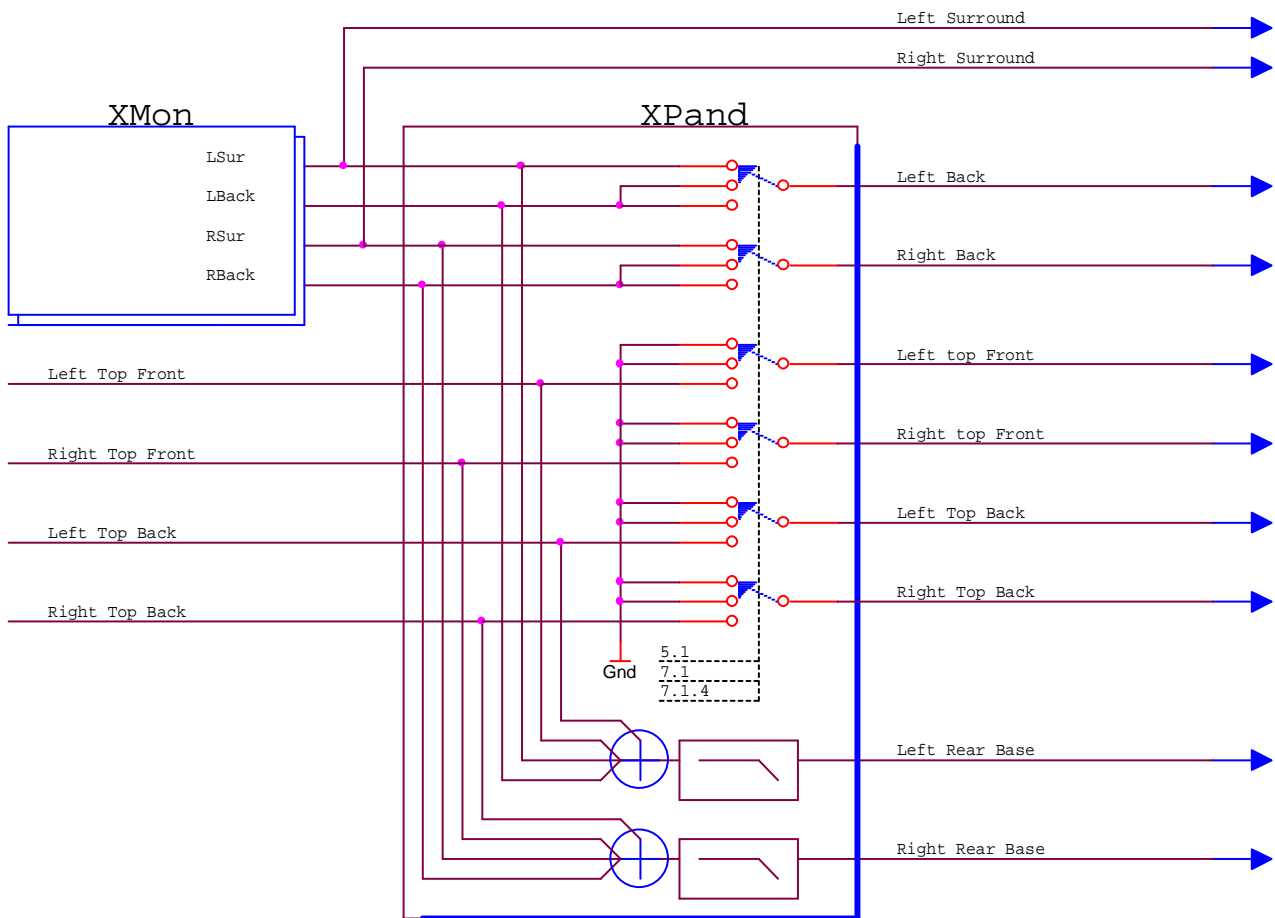
5,1/7.1/7.1.4

Atmos: XPand provides the control for the four ceiling speakers.

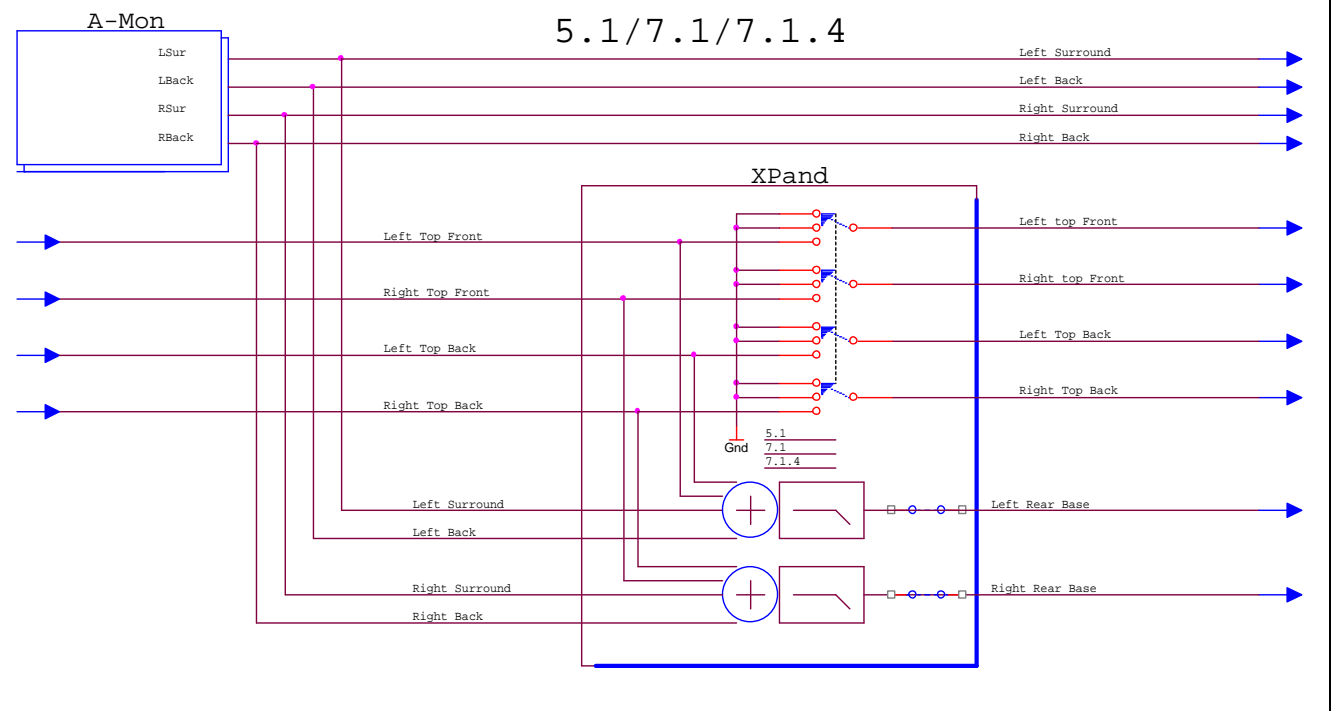
Surround Bass Extension: Left and Right sum and low pass of all the surround channels

XMon 7.1 to 5.1 Routing: Switch the rear speakers to Ls and Rs for 5.1 (XPAND provides the 5.1 gain Trim).

XPand 5.1/7.1/7.1.4 with XMon



XPand 5.1/7.1/7.1.4 With A-Mon



5.1/7.1/9.1.2

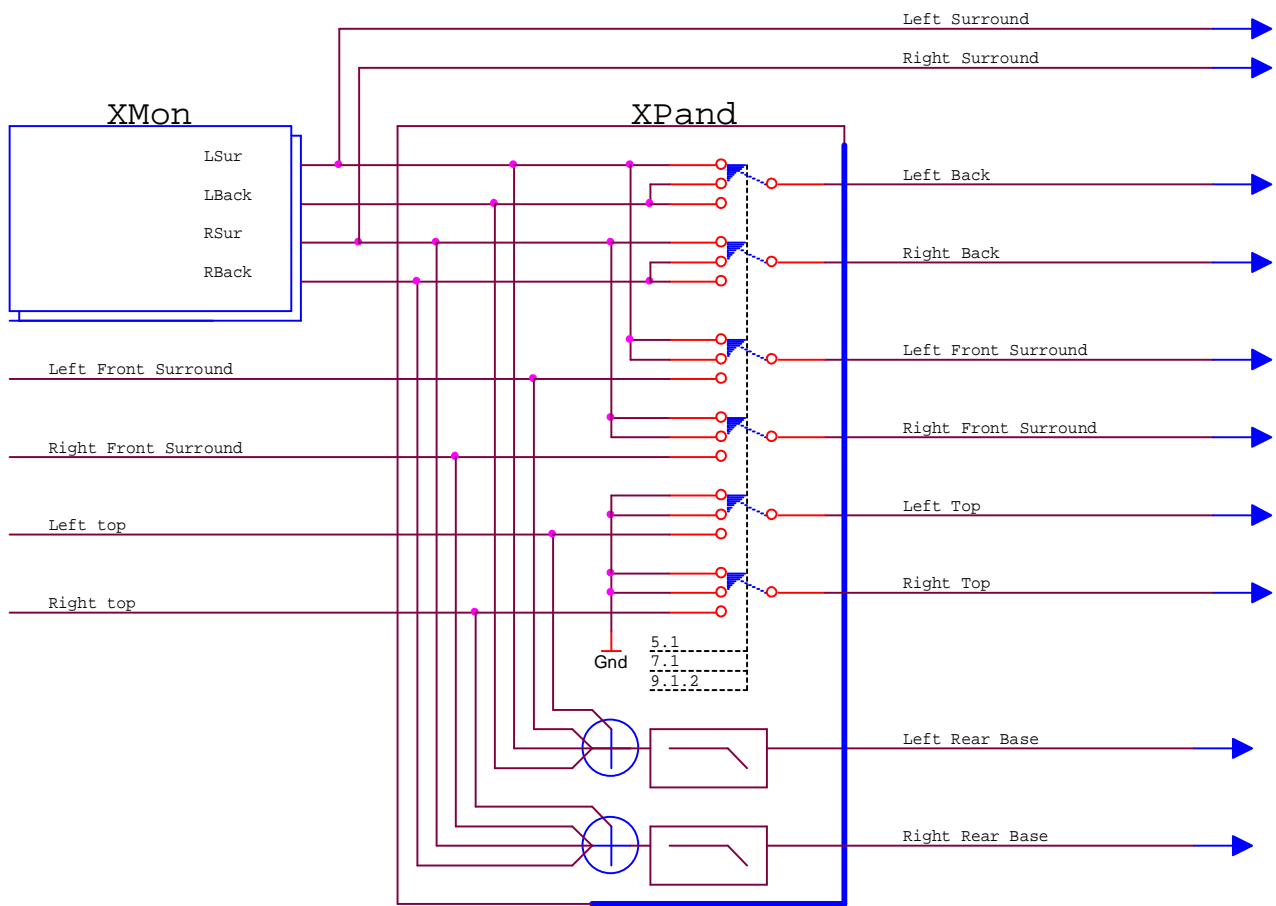
Atmos: XPand provides the control for the two ceiling speakers and two front speakers

Surround Bass Extension: Left and Right sum and low pass of all the surround channels.

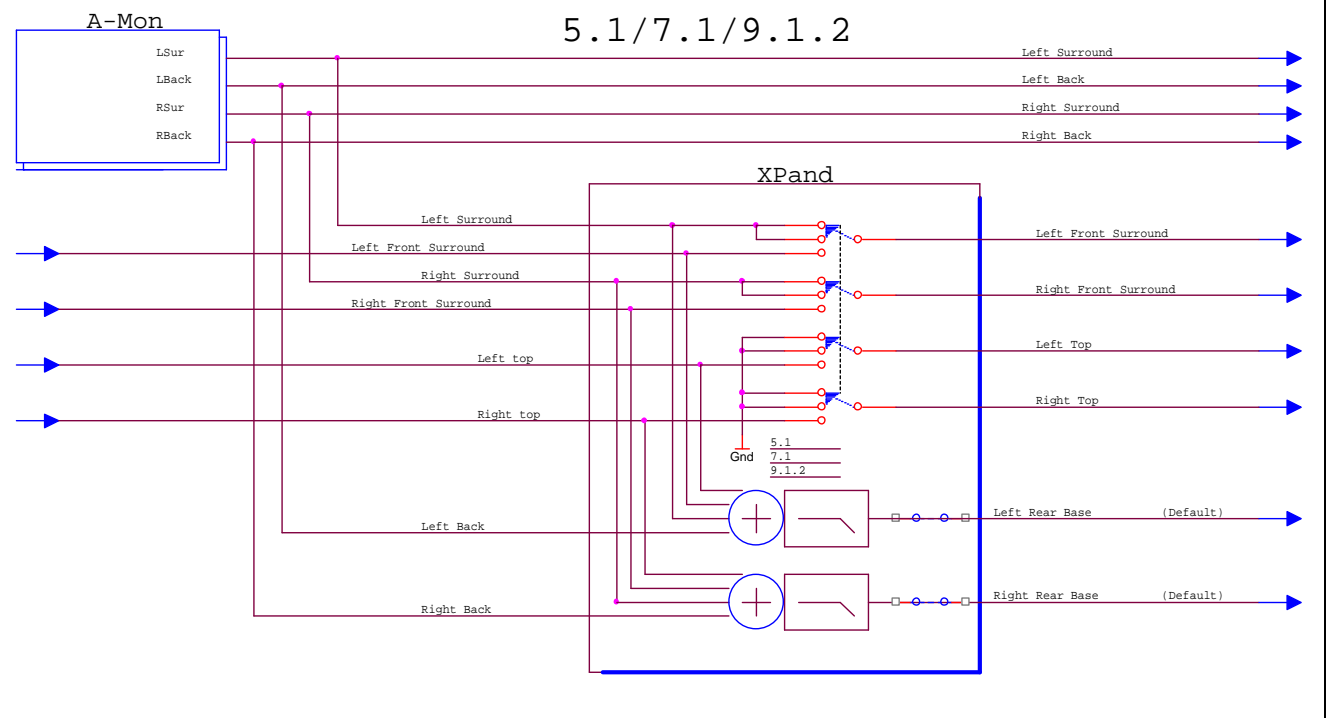
7.1: XPand switches the Front surrounds to Ls and Rs.

XMon 7.1 to 5.1 Routing: Switch the rear speakers to Ls and Rs for 5.1 (XPAND provides the 5.1 gain Trim).

Xpand 5.1/7.1/9.1.2 With XMon



Xpand 5.1/7.1/9.1.2 with A-Mon



Note: Other combinations may be added at a later date, for example a 9.1.4 system if the rear speaker switching is not required.

XPand Audio Input/Output Connections

Input Connections (25 pin 'D')							
Channel	(+)	(-)	Gnd	8 Chan	7.1.4	9.1.4	
1	24	12	25	Xpand 1	Left Top Front (Ltf)	Left Front side (Lw)	
2	10	23	11	Xpand 2	Right Top Front (Rtf)	Right Front Side (Rw)	
3	21	9	22	Xpand 3	Left Top Back (Ltb)	Left Top (Lt)	
4	7	20	8	Xpand 4	Right Top Back (Rtb)	Right Top (Rt)	
5	18	6	19	Xpand 5	Left side (Ls)	Left side (Ls)	
6	4	17	5	Xpand 6	Right side (Rs)	Right side (Rs)	
7	15	3	16	Xpand 7	Left back (Lb)	Left back (Lb)	
8	1	14	2	Xpand 8	Right back (Rb)	Right back (Rb)	
Gnd			13				

Output Connections (25 pin 'D')							
Channel	(+)	(-)	Gnd	8 Channel	7.1.4	9.1.4	
1	24	12	25	Xpand 1	Left Top Front (Ltf)	Left Front side (Lw)	
2	10	23	11	Xpand 2	Right Top Front (Rtf)	Right Front Side (Rw)	
3	21	9	22	Xpand 3	Left Top Back (Ltb)	Left Top (Lt)	
4	7	20	8	Xpand 4	Right Top Back (Rtb)	Right Top (Rt)	
5	18	6	19	Xpand 5	Left BassX	Left BassX	
6	4	17	5	Xpand 6	Right BassX	Right BassX	
7	15	3	16	Xpand 7	Left back (Lb)	Left back (Lb)	
8	1	14	2	Xpand 8	Right back (Rb)	Right back (Rb)	
Gnd			13				

Firmware Updates

The USB Port is also used to update the XPAND firmware. Updates are posted on the XPAND product page. See the XPAND Reference for more information:

<http://www.colinbroad.com/cbsoft/amon/xpand.html>

The Mute LED is used to indicate the Programming mode as follows

- Mute LED Flashing approximately once per second – Ready to program
- Mute LED Flashing approximately twice per second – Programming
- Mute LED Flashing approximately once per two seconds – Finished programming

Recovery Mode

If for any reason there is a problem when reprogramming (eg. Power Failure) a recovery mode is provided.

To enter recovery mode, disconnect the power for at least 5 seconds, then reconnect with the Mute key depressed. You will need to reselect the USB port used by MidiUpd.

The Mute LED will flash at approximately 1 second intervals to indicate that the device is ready to program.



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