BI6218 – Waves SoundGrid Interface for Hydra2

Waves SoundGrid Interface for Hydra2

The Waves SoundGrid interface is packaged as a 1 slot-wide card for the Hydra2 modular I/O product. The module provides 64 channels at 48kHz in each direction between a SoundGrid network and a Hydra2 network via a single Ethernet cable.

The module is supported on Apollo, Artemis, and Summa, from software version 3.1 and Brio from software version 1.0.

What is SoundGrid?

"SoundGrid is an Audio-over-Ethernet networking and processing technology developed by Waves. SoundGrid provides extremely low-latency, high-channel-count audio processing using standard Intel CPUs and 1 Gbps Ethernet networks for studio, live sound, and other real-time professional audio applications. Real-time audio processing is performed on standard Intel-based plugin servers, running a Waves-customized real-time version of Linux."

You can learn more on the Waves site:
http://www.waves.com/soundgrid-systems

What is required?

Calrec are not responsible for selling or supporting Waves SoundGrid equipment. But we should have an understanding of what customers require, and how it integrates with our systems.

1. The heart of a SoundGrid system is a SoundGrid Server. This is a dedicated, and optimised PC running a Linux OS that hosts the Waves plugins and performs the required processing. This is a headless unit. A separate PC (or Mac) is required to control the plugins. There are various models of server, and Calrec should defer to Waves for information on which model is most suitable for a particular application.
2. A PC to control the SoundGrid server. This PC runs appropriate Waves software and provides a UI for the plugins running on the SoundGrid server. The Waves software also installs a Waves SoundGrid I/O driver, which can be used to get audio in and out of the PC. The PC can then also function as a recording or playout device using the SoundGrid network as its audio interface. Calrec do not approve the use of the console PC for this task.
3. One or more Hydra2-SoundGrid interface modules, depending on the amount of I/O required. Each module provides 64 I/O between Hydra2 and SoundGrid.
4. One or more Waves SoundGrid certified network switches. For very simple systems with just a server and a PC, a switch is not required, but for anything more advanced a switch is essential.
5. Waves plugin and software licences. Available from Waves, the customer must purchase appropriate licenses for SoundGrid compatible plugins, and appropriate software for control. The most appropriate software for our use cases is MultiRack SoundGrid. At time of writing, the released version of MultiRack supports mono and stereo plugins.

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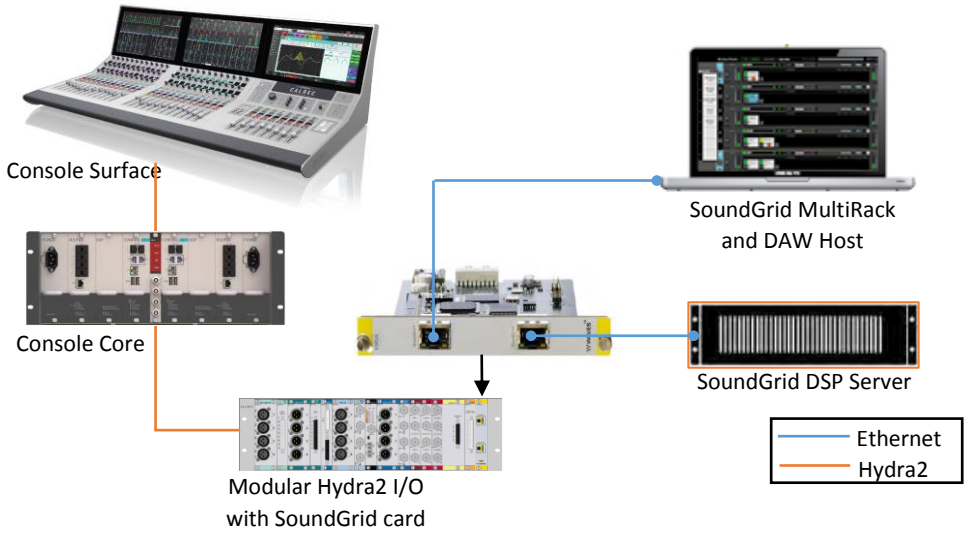
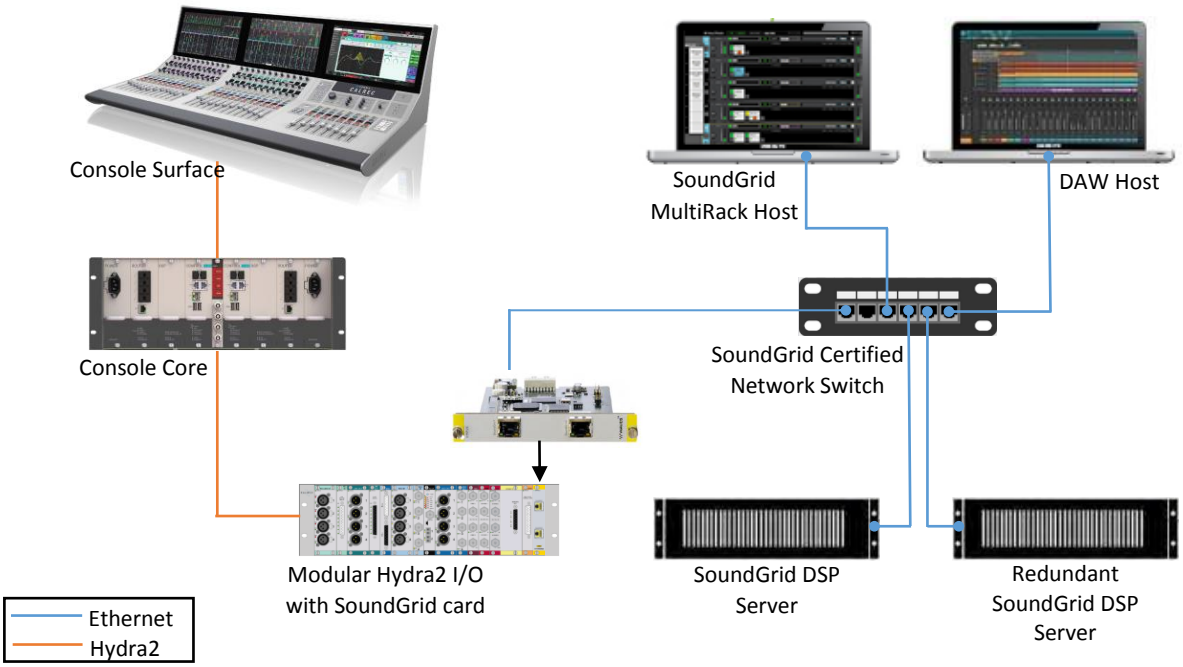
Integration Examples

The simplest example involves a single SoundGrid server and one Calrec Hydra2-SoundGrid interface module. The SoundGrid Server connects directly to one SoundGrid port on the Calrec SoundGrid interface and a PC or Mac connects to the other. The PC or Mac runs the Waves control software. It can optionally send and receive audio over the same SoundGrid connection, which can be used for playout or recording. The user sets up routes to and from the Calrec SoundGrid interface with MultiRack (which actually routes audio in and out of the SoundGrid Server) or the PC.



A more complex example requires the use of a SoundGrid certified switch. This allows the connection of two SoundGrid servers for redundancy, and expansion for more SoundGrid equipment, such as a dedicated playout or recording machine. The control PC could connect directly to the Calrec SoundGrid interface, or into the switch.



There are two RJ45 sockets on the front of the module. Think of these as two ports on a network switch. Connecting both to a SoundGrid network does not allow the module to provide more I/O. They allow multiple items of SoundGrid equipment to connect directly to the module if required.

Customers can use a dedicated display and input devices for the Waves PC. If they want a more integrated feel, on Apollo and Artemis they could switch the console PC display, keyboard, and mouse, using a KVM or VNC protocol (similar to remote desktop). They still require the dedicated PC to run the control software. In the IBC demo, we accessed the Waves PC on the Artemis desk PC using VNC. Lawo present the Waves interface on their large surface display using a remote desktop technology.

Calrec Benefits and USPs

Calrec's approach is cheaper, more integrated, lower latency, and more reliable than the competition.

Calrec's approach creates a direct interface between Hydra2 and SoundGrid. This allows for lower latency and removes the need to buy hardware to convert from the desk's native audio format, to a standard audio format, then to SoundGrid, and vice-versa. For example, our competition require a MADI interface for their network and a DiGiGrid MADI-SoundGrid converter. This adds latency and requires more hardware, and so more expense and greater chance of failure.

Waves provide useful broadcast tools, such as the WNS noise suppressor (CEDAR clone), and the UM225/6 upmixers. The ability to run multiple instances of these tools on a single SoundGrid server could be attractive to customers over multiple hardware upmixer and noise reduction boxes which generally provide a single processing instance.

http://www.waves.com/plugins/wns-noise-suppressor
http://www.waves.com/plugins/um225-um226

What Calrec do not provide

Calrec do not provide integration between the Calrec and Waves memory/preset systems. When a user loads a show or memory on a Calrec system, they must manually load the appropriate session in the Waves software. There is potential for integration in this area, but it is not in our short term plans.

There is no scope for control of Waves plugin parameters from Calrec control surfaces. There is not an appropriate protocol available in the Waves software at this time.