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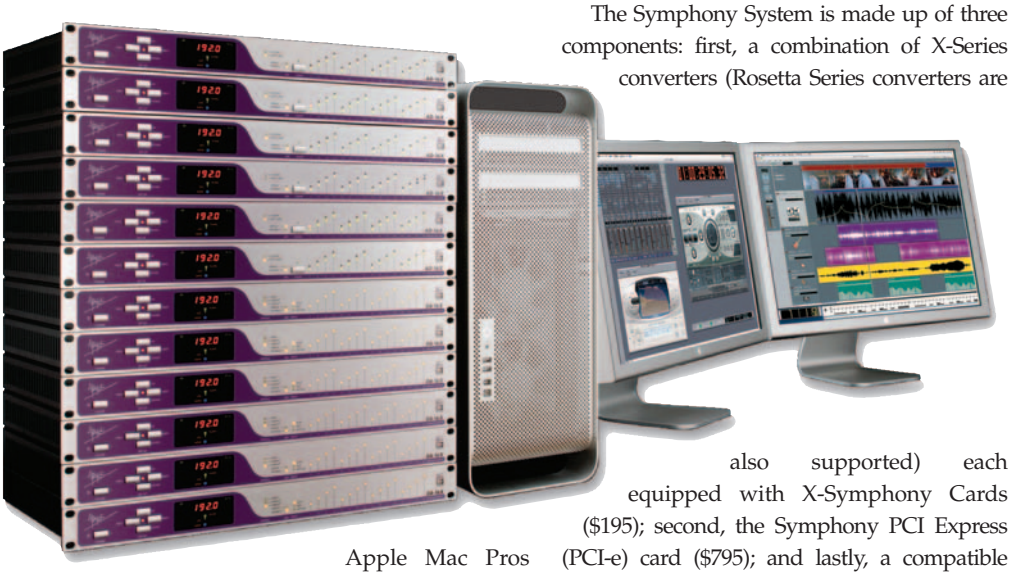
Apogee Symphony Recording System

by **Russ Long**

This competitively priced, high-performance native DAW is a challenge to the industry pervasiveness of TDM systems.

Apogee Electronics has unveiled the Symphony System, perfectly timed with the rollout of ultra-fast, multi-core Intel-based Apple Mac Pros and the state of the art Logic Pro 7.2 DAW update. The Symphony System is a complete DAW that offers the greatest number of I/O channels per card of any CoreAudio compatible digital interface. It is actually the only solution capable of 96 channels of I/O for Mac without the need for an expansion chassis. The system maintains a low CPU load, thus conserving the computer's processing power for plug-ins. Connection between the computer and the audio hardware is completed via one high performance balanced cable that is capable of flawlessly transmitting digital audio over long distances. And the Symphony System is a competitively priced package, regardless of the exact configuration.



| FEATURES

The Symphony System is made up of three components: first, a combination of X-Series converters (Rosetta Series converters are also supported) each equipped with X-Symphony Cards ($195); second, the Symphony PCI Express (PCI-e) card ($795); and lastly, a compatible Apple computer (such as the Mac Pro, price variant upon configuration) running Logic Pro ($999), or any other CoreAudio-based application, and optional Maestro software (included with the Symphony PCI card). A PCI-X version of the Symphony card is available for earlier model Mac G5s not supporting PCI-e.

The AD-16X and the DA-16X ($3,495 each) are Apogee's latest and most advanced conversion systems. They ramp up Apogee's legendary build quality by incorporating a redesigned power supply, standard 192 kHz sampling rates (the C777 clocking technology found in the Big Ben) and several optional expansion cards.

The power supply in the AD-16X and the DA-16X is a specially designed Synchronous Switching power that works in conjunction with Apogee's low jitter clock and filtering technology. It provides better heat and noise performance and an improved transient response, thus creating an ideal power system for first-rate conversion.

The AD-16X incorporates Apogee's classic SoftLimit and UV22HR features. SoftLimit is an analog peak limiter that enables the capture of an additional 4-6 dB of level without any overs. UV22HR is Apogee's industry standard bit-reduction/dithering technology for CD and DVD mastering; UV22HR can also be used to produce improved Internet and computer audio content without increased file sizes or data rates.

The DA-16X incorporates Apogee's electronically balanced line drivers, which were originally designed for the Mini-DAC. These

FAST FACTS

APPLICATIONS
Studio, broadcast, audio post

KEY FEATURES
32-channels of I/O per card; 1.6 milliseconds of latency at 96 kHz (the lowest available in a native audio system); amazing sound; flexible configuration; reasonable price; built-in Big Ben-quality clock

PRICE
Symphony PCI Series card: $795
AD-16X: $3,495
DA-16X: $3,495
X-Symphony Card: $195
Logic Pro: $999

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line drivers simulate transformer behavior. The circuitry is an ultra low output impedance/high current driver, capable of running levels up to 26 dBu to the most complex or low impedance loads. This translates into seamless integration with vintage equipment.

The Symphony PCI card was designed specifically for the Apple Mac. It is a 24-bit/192-kHz PCI-e card that provides 32 simultaneous channels of digital I/O. Up to three Symphony cards can be installed in one Mac, making it possible to have 96 simultaneous inputs and outputs running natively within a single computer. A 192-channel (96 in and 96 out) I/O setup requires six AD-16X boxes and six DA-16Xs. And configuring the AD-16X and DA-16X to "Advanced" routing allows additional hardware (converters, digital effects, etc.) to be connected via the AD/DA's digital I/O.

The heart of the Symphony System is the Maestro software. This software application, while not required, provides undeniably valuable control of Apogee interfaces by allowing the user to adjust hardware settings, configure routing between hardware I/O and audio software I/O, and to perform low-latency mixes of hardware I/O paths and software outputs. Maestro consists of two main windows, the "Settings" window and the "Routing/Mixer" window. Maestro also includes functionality for checking Ensemble software and firmware versions, personalizing "modifier" keys when setting the mixer, and saving and recalling routing and mixer configurations.

The Settings windows allows the user to toggle between the Apogee interfaces that are connected to the Symphony PCI card, set the clock source for the selected unit, configure the VBus, and configure the Performance Tuning. The V-Bus feature, employing Apogee's ultra-fast Symphony driver, provides unlimited routing possibilities across multiple applications in any Symphony System. This makes recording out of QuickTime or Final Cut Pro directly into your DAW a breeze. The Maestro Control Panel allows the virtual channels to be enabled. The V-Bus channel names are clearly labeled and the number of additional V-Bus channels is selectable within Apple's Audio Midi Setup. Logic users will love this feature because it makes it possible to record bus outputs within Logic Pro. VBus offers zero latency performance with minimal processing power on up to 32 buses per Symphony card, ensuring maximum audio performance.

Apogee Symphony Card

Maestro's Performance Tuning feature provides the ability to fine tune the performance of the Symphony driver to allow super low latency for high performance platforms. This gives the user the ability to maximize the performance of the Symphony system on all supported hardware.

The Routing/Mixer Window has three panes labeled "Input," "Output" and "Mixer." Like the Setting window, each of the Routing/Mixer panes has a "Unit Select" tab that allows the user to toggle between the Apogee interfaces that are connected to the Symphony PCI card.

The Input routing pane consists of a routing grid that plots the various connections between hardware inputs and signal paths to software applications. These connections appear as inputs within the software applications. It is also possible to send one hardware input simultaneously to several software signal paths. The hardware inputs are represented by a row at the top of the grid, while paths to software are represented by the column to the left of the grid.

Signal paths to software may be configured as Mono or Stereo within the "Matrix" column of drop down menus. The Mono setting allows for the greatest routing flexibility, but the Stereo setting offers the convenience of routing signals a pair at a time. I found that the Stereo generally worked best for all of my applications, but it was nice to have the option of configuring the paths as mono if required. The signal paths can be labeled in the Input column.

The Output routing pane is almost the same functionally as the Input pane but it is used to make connections between signal paths from software applications and hardware outputs. Hardware outputs are represented by a row at the top of the grid, while the column to the left of the grid represents paths from software. In the Matrix column of drop down menus, signal paths from software may be configured as Mono or Stereo. The Mono setting, like the Input pane, allows for the greatest routing flexibility, while the Stereo setting offers the convenience of routing signals a pair at a time. A path may be set to Off in this menu as well. Signal paths may be labeled in the Output text box. If the AD16X is set to Standard routing, there will be no paths listed in the Output pane as there is only one signal path (analog inputs to all digital outputs). When it is set to Advanced routing, the Input pane is used to route the AD16X's analog inputs to software inputs and the Output pane is used to route software app outputs to the AD16X's AES and ADAT/SMUX outputs. There will likewise be no paths listed in the Input pane if a connected DA16X is set to "Standard" routing.

The "Maestro" mixer blends the hardware inputs with the software application playback and routes the mix directly to hardware outputs. The "Mixer Select" (A-B) drop down menu selects between the two available mixers per hardware interface. The "Input Channels" provide the ability to control inputs to the mixer. Hardware inputs of the selected interface are the source for these input channels. The mixer always displays 18 inputs; the unused mixer channels are grayed out if the selected device is equipped with less than 18 inputs. The mixer inputs each have "Pan," "Level," "Solo" and "Mute" controls. A bar graph style meter displays the pre-fader input level.

The "DAW Return" is a stereo input that provides level control, metering and mute/solo functions for the DAW Return signal, e.g. the mix of playback tracks from the software app. The "Main Output" is a stereo channel that pro-

| APPLE OF THE REVIEWER'S EYE

The Apple Mac Pro included with my review setup was, by a large margin, the best computer that I've ever used. It worked perfectly, was lightning fast and, quite frankly, made me drool. If I had the money (or even enough room on my credit card) it would have found a permanent home in my studio. The Symphony System, even considering the Mac Pro's price tag, is about half the price of a Pro Tools rig of similar specifications.

| HERE'S A CLOSER LOOK AT THE COMPUTER

- Mac Pro w/Dual-Core 3-GHz Intel Xeon processors
- L2 Cache (per processor): 4 MB
- Memory: 4 GB
- Bus Speed: 1.33 GHz
- 465 GB internal drive
- 1.36 TB internal raid

vides a level fader, metering, and a routing selection drop down menu for controlling the stereo output of the mixer. The Main output drop down menu selects the hardware output to which the Main Output is routed.

| IN USE

The system that I reviewed consisted of a Macintosh dual 3-GHz Mac Pro with a beautiful 23-inch Apple Cinema HD Display, a Symphony PCI Express card, two Apogee AD16X interfaces, two DA16X interfaces, the Maestro software package (included with the Symphony card) and Logic Pro 7.2.

On the rear of the X-Symphony card are two self-latching multi-pin connectors labeled "Main" and "Through." Communication between the converter and the Symphony card is completed via Apogee's proprietary PC32 digital cable. The AD-16Xs and DA-16Xs have to be placed in the correct sequence for the rig to operate properly: first an AD-16X then a DA-16X, then the second AD-16X, then the second DA-16X, and so on. A PC32 cable runs from the Symphony card to the AD-16X's Main port and then from that unit's Through port into the Main port of the next unit, and so on.

I connected and configured the system (which took one call to tech support due to operator error), then launched Apple's Audio/MIDI Setup and set the default system I/O to the Symphony card, so all applications that use audio (including QuickTime and iTunes) played through the Symphony engine.

Now it was time to dig into Maestro. I knew the software was powerful, but if it weren't intuitive and easy to use it wouldn't translate well into the real world. I was impressed; the software was easy to navigate and manipulate.

I loaded in a multi-track work in progress and was ready to record my first Symphony System track. But first I went to the "Audio Hardware and Drivers" page and unchecking the "Software Monitoring," configuring Logic Pro so that my overdub track would mute when Record was engaged, yet would play back when Record was disengaged (even though the track was record-enabled). This would take full advantage of Symphony's low latency performance, and make the software behave like an analog tape-machine in auto-input.

I used the same configuration in a full tracking situation (22 tracks) and had flawless operation. Working on native systems in the past has always reminded me of taking pictures with a cheap camera. It seems like every time you try to take a picture there is a lag before anything happens. This is not the case with the Symphony System. It responds to any command instantly, making punching in or out or any quick adjustments a breeze. This is the first time ever I have found myself working on a native-based system that provides the same quality of performance that I've only been able to attain with Pro Tools.

I went on to route a single mic to all 32 inputs, just to see if I would have any problems recording long audio files: 32 tracks, 96 kHz and 180 minutes and I didn't have a single problem.

| SYMPHONY MOBILE: AN ON-THE-GO OPTION

Apogee Symphony Mobile, based on a new PCI ExpressCard, is built for on-the-go engineers using an Apple MacBookPro. The large number of MacBookPro laptops now used by professionals in the audio industry make this product a serious contender. It's 192 kHz capable and offers 32 channels of simultaneous I/O with nearly non-existent latencies at 96 kHz — a mobile symphony, indeed.

"The challenge was to make it easier for these professionals to get around and work at the same level that they could in a traditional environment," said Apogee Director of Sales Max Gutnik. "We believe Symphony Mobile meets this challenge exceedingly well, making it the ultimate solution for the professional on the go."

If the desktop review is any indication, engineers who can't sit still may find some extra grease for the wheels in the Symphony Mobile system — stay tuned.

— Strother Bullins

gle problem.

I don't care how powerful or reasonably priced a recording system is, if it doesn't sound good, it's just not worth attention. I've been using the AD-16X and the DA-16X in various Nashville studios for years and I've always been a fan of their sound. When equipped with the X-HD Card instead of the X-Symphony card they act as seamless replacement for the Digidesign 192 within a Pro Tools rig (but they sound much better). If a studio has Apogee converters I'm confident enough to leave my DAW at home. This said, my assumption was that I would be pleased with the sonic performance of the Symphony System and I was right. In every instance the Symphony System sounded wonderful. The filters are focused, punchy and transparent, and they have a wonderful clarity.

I compared the clock in the AD-16X to my Lucid GENx96 Clock and I wasn't able to hear any difference. Wow, an internal clock that sounds as good as a stand-alone model. There's nothing wrong with that! I had great results using not only Logic Pro, but also Bias Peak, Nuendo, Garageband and Ableton Live with the Symphony System.

| SUMMARY

I'm a long time Pro Tools user and, quite frankly, I haven't considered switching platforms…until now. Logic Pro 7.2 coupled with the Symphony System is reasonably priced for any audio professional and it has no major faults that I can find.

Apple's Final Cut Pro has literally swiped Avid's golden crown of film and video editing over the last few years, and now it appears that Logic Pro teamed with the Apogee Symphony System could make it a double play. The Symphony System paired with with Logic (or Cubase, or Digital Performer, etc.) matches the performance and surpasses the audio quality of Pro Tools|HD, while cutting the price virtually in half. Anyone in the market for a high-end DAW should give the Symphony System top consideration.

Russ Long has done 5.1 DVD mixes for Allison Moorer and Mercy Me and is an in-demand engineer for live sound recordings.