



Mackie Digital X Bus Console

by [Barry Rudolph](#)

FIELD TEST

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Mackie's Digital X Bus console represents an evolutionary jump for compact, powerful and affordable mixing systems used in recording, post-production and live sound work. The unit boots immediately and includes striking features such as two 15-inch touchscreen flat-panel monitors; the self-contained nature of this aesthetically appealing console clearly indicates further development in mixer architecture and control surface ergonomics. A tribute to intuitive, well-thought-out design, the Digital X Bus will become even more powerful with future software iterations.

Digital X Bus is offered in two versions that both operate up to 192 kHz: the X.200 (reviewed here) and the X.400. In addition to all of the X.200's capabilities and features, the X.400 has an another I/O slot for more input/outputs possible at 96 kHz, more surround stem mixing/monitoring options, a dual-processor computer, a pre-loaded Universal Audio UAD-1 Powered Plug-Ins card (optional on the X.200) and RS-422 Sony 9-pin control. Both include a layer that emulates the Mackie Control Universal control surface with virtual overlays for any software DAW: Pro Tools, Logic Pro, Nuendo, Cubase, SONAR and more. Additional customized DAW system integration is also possible through the MIDI Map window for bidirectional MIDI access to console controls and plug-in parameters.

THE HARD/SOFTWARE

The X.200 and X.400 share the same dimensions: 9.2H X 43.6W X & 31.8D inches and each weighs 73 pounds. The computer chassis has a standard PC motherboard running a single Intel Pentium 4 at 3 GHz (dual Intel Xeon with hyperthreading in the X.400) and 1 GB of RAM that's expandable to 2 GB. There's a 60GB internal IDE hard drive, but no CD-ROM drive. However, it's easy enough to connect an external CD-ROM or pocket Flash drive to the USB socket for software updates or to back up sessions and automation data. I noticed the cumulative whirl of the hard drive, CPU and power supply fans, but I did not find that objectionable.

The motherboard has a standard Ethernet RJ-45 connector but, at this time, no network or Internet connectivity implementation. Mackie plans to develop a secure procedure that will enable both automatic factory updates and future online session collaboration between consoles. Co-developer SaneWave Inc. designed the computer's PCI card, which does all audio routing, with the X.200 capable of 144 streams of 96kHz audio simultaneously. This card also converts all incoming fixed-point, 24-bit PCM audio data into 32-bit floating point. Both the X.200 and X.400 come with four additional PCI slots alongside the dual-head Radeon graphics card. My test console also had two UAD-1 cards running.

Other connections include two assignable foot switches, MIDI I/O, Sony 9-pin RS-422 connector (X.400) and two USB ports. Behind the motherboard access panel are four more USB jacks and PS/2 ports for a standard QWERTY keyboard and mouse. Additionally, a virtual keyboard appears on the screen. I occasionally used the mouse, but mostly just to adjust third-party VST plug-ins that didn't support the touchscreen interface. The Digital X Bus uses Microsoft's Embedded XPE software, allowing developers to do kernel-level customization; it's Windows XP Pro--optimized for the console only.



I/O OPTIONS

Digital X Bus consoles are sold "a la card" sans I/O cards. Six different I/O cards are interchangeable per your application. You cannot use D8B cards. The console card cage ships with the Sync card providing word clock and SMPTE I/O and the Mix Out card, with AES/EBU and S/PDIF stereo I/O, two sets of stereo monitor speakers, two stereo headphone outs and TRS balanced left/right analog outs.

The Mic/Line 4 card has four mic XLRs and four TRS balanced lines. All mic input cards use the new TI/Burr-Brown PGA 2500 preamp chip. The Mic/Line 8 card has eight balanced mic/line inputs and outputs on two DB25s in Tascam pin-out. The Line card has eight balanced analog line I/Os, also using two DB25s. Each card has -10dBv/+4dBm switches for each line input and output. The X.200 accepts up to eight 8-channel cards for 64 total I/O channels, in addition to the aforementioned Mix Out card for L/R output, monitoring and 2-track returns.

Three digital I/O cards are offered: AES/EBU, digital and FireWire. The AES/EBU card has one DB25 for eight channels of digital audio in single-wire AES/EBU format, up to 192 kHz. The digital card provides eight channels in two formats: TDIF on a DB25 and four Toslink ADAT Lightpipe optical ports. For 88.2/96kHz rates, S/MUX I protocol splits the eight channels to four on the Lightpipes. S/MUX II at 176.4/192 kHz leaves two channels on each Toslink connector for a total of four. The FireWire card uses 24 I/Os up to 48 kHz or eight at 96 kHz. Mac OS X Core Audio and Windows XP ASIO applications are supported.

THE CHANNEL STRIP

Two 15-inch (1024 X 768-pixel) touchscreens greatly reduce the console's button count. The X Bus' lighted buttons are much larger than the D8B's. I never had to hunt around for a certain button because the console is less cluttered.

The left touchscreen has familiar computer drop-down menus for finger or mouse access. These menus mirror the console's hardware setup buttons-- you can go quickly from section to section to pre-configure the console for your session.

At startup, the touchscreen defaults to show 24 channel strips--12 per screen, each with a good-looking and large peak-reading VU meter with resettable clip indicator. Each strip has a 100mm Penny & Giles touch-sensitive fader (1,024-step resolution). Like on the D8B, you can switch fader banks (in banks of 24) for channels 1 through 72 using hardware buttons or by touchscreen. Onscreen, you can also choose the bank you want from a row of 94 meters, comprising channels 1 through 24, 25 through 48, 49 through 72 plus aux 1 through 12 and bus 1 through 8 and finally the L/R mix.

The channel strips divide into touch-sensitive sections, which open to large menus for touch-and-drag adjusting of that section's parameters. While any channel section is enlarged on the screens, its parameters are also spread out on the 24 V-Pot rotary shaft encoders across the board. Navigation, control and configuration throughout the Digital X Bus are assisted by two-layer pop-up window menus. Whether called from the Windows drop-down menus or from a setup button, once a pop-up window opens, all choices and options are presented with little or no drilling down.

Channel strip sections include Assign (for busing and inserts), Aux (for access to 12 aux sends and pans), Equalizer (a small display shows your EQ curve and touching it fills the screen with the full 4-band parametric) and Dynamics (shows a VU meter; a full compressor/gate GUI fills that screen when touched).

Touching the Surround Panner gives access to the virtual joystick panner, LFE level and cut-off point, surround bus assignment across eight buses (with presets for stereo, quad, LCRS, 5.1, SDDS 7.1 and "Theme Park" 7.1) and LFE on/off. The center-channel divergence control is standard and regulates the amount of center-channel audio delivered to the other channels. Cleverly, the familiar Morph function from the D8B is used to A/B between two different panning schemes.

ADOPTED V-POTS

The Digital X Bus' V-Pots, carried over from the D8B, are better than ever. Using the compressor, EQ and aux sends is like using an analog board, with a V-Pot knob for every parameter and numeric readout under each knob. The V-Pots control L/R pan and F/B, aux 1 through 12 sends, panning for stereo auxes 9/10 and 11/12, digital trim and level-to-tape. While mixing, it was easy to have one finger toggling the V-Pot assign button to go through the channel's tweaking multiple effect sends. I never adjusted the wrong parameter by accident because I always knew which one was active.

Hardware pushbuttons on the channel strips make operations fast. Choosing Select enables that channel for editing: push it twice, and the dynamics and EQ processors fill both screens with

active V-Pots simultaneously. Wow! Press and hold Select, and Channel Setting activates a menu for setting groups, links, naming channels and more. Press and hold Select buttons on any two channels to gain access to the Link setup page to stereo link all channel parameters.

Four mode buttons in the Assign Button box apply to all channel strips whose Assign buttons are pushed. Rec arms that track/channel in your DAW or multitrack recorder via MIDI Machine Control; L-R assigns/removes that channel from the L/R mix bus when that channel becomes a recording path; Read is for reading back automation data with no chance of overwriting; and Write scripts automation data.

Each channel has large, lighted Mute and Solo buttons. Solo modes include PFL, AFL and Mixdown Solo-in-Place. A separate pot controls the level of the solo tracks in all three modes. In Mixdown Solo mode, you'll hear the panned position of a track but not its actual mixed level, which is assigned on the pot. You can easily Solo Isolate channels for effect returns, solo multiple tracks together (with Solo Latch) and clear all soloed tracks.

MONITOR AND CONTROL

Control room monitor facilities include switching for near-fields and mains with a single volume control knob, monitor source switching for connecting mixdown machines and CD players, mono monitoring mode and monitor dim. I liked having a setup screen for calibration of monitors with built-in pink noise and oscillator signals, which are great!

The Phones section allows running two different stereo mixes and does cool things such as Copy Mix to Cue, in which all cue knob levels change to the main fader level values, including panning and effects. In the Talkback setup window, you can designate alternate talkback audio sources and include any source coming into any input card. There are 16 (eight with a Shift key) programmable macro or quick keys for frequently used functions, and the Transport section, with its large jog wheel, duplicates most auto-locator features on tape decks, hard disk systems and DAWs, and sends them out as MMC commands.

Like on the D8B, the Snapshot section stores and recalls snapshots of static console settings. This is great for rough monitor mixes and allows you to move quickly from song to song, as every knob/fader position and processor setting are held in memory.

IN SESSION

I mixed a local rock band that was tracked on a Mackie HDR24 hard disk system during my first session. Had I started a mix on a D8B, I could have used the Import D8B Session menu, imported that session data and finished the mix on the X Bus. The EQ and dynamics sections are newer algorithms, so don't count on them sounding the same, but all other levels should be identical.

The first 24 channels on the Digital X Bus were configured to accept +4dBm analog for recording or playing MIDI instruments while the second 24 received digital audio from the HDR24 over TDIF. The Digital X Bus acted as master with clock signals going to the HDR24. I began EQ'ing

and working on individual sounds immediately to derive a working mix. It's great to have the equalizer and compressor/gate fill up both screens with large graphical interfaces and all 24 V-Pots available for tweaking. I was glad to see I could still morph from one EQ and dynamics setting to another.

Next, I set up my effects rack. Conveniently, the first macro button called up my effects — a virtual rack to add or delete effects at any time and designate their routing (send/return or inserts). Each new effect dropped in at the bottom of the stack, so after you have four or five effects, you'll have to scroll down to find the newest addition.

Digital X Bus comes with a fine collection of effects. You can also install third-party VST plug-ins using the Package Installer pull-down, which supports standard USB dongle authorization. However, at this time, the console does not support PDC (Plug-in Delay Compensation), and there is no listing showing the latencies of installed plug-ins as you would find in DAW programs such as Nuendo. But once you know the latency of a particular plug-in, you can delay any number of channel strips all at once (up to 500 ms) using the Channel Delay menu. This was only crucial for channel strip insert effects such as compressors or EQs; for send and return effects like reverbs and delays, or to insert a stereo master bus compressor across the whole mix, this does not apply.

There's one quirk: With each new VST insert effect added, you must keep track of the accumulated latency. As of this writing, Channel Delay does not do this math for you. [*Eds. note: This has been fixed with current software.*] I preferred using the built-in EQ and dynamics sections on the channel strips as they don't add latency and sound great. I ran 15 third-party VST plug-ins of all stripes using only about 50 percent of available CPU resources, without noticing any operational differences.

Automating moves is easy: It's the same as the D8B's Write/Read/Trim modes. A History List menu provides selective undo options so that you can revisit an earlier version of your mix. The Automation menu has enable buttons for faders, pans, mutes, others and filters. Automation Filter selects or deselects other parameters such as bus, phase, aux and dynamic.

The Mix Editor window easily allows complete editing of any automation data in familiar, graphical break-point fashion. You can have up to 30 channels showing at a time, and can scroll through all control surface knobs displaying one parameter at a time. If your setup is MMC-enabled, click anywhere on the data and locate your DAW or multitrack at an exact place in a song. You can copy and paste data, write new data with the Pencil tool, zoom in on a chunk with the Magnify tool and quickly remove any bungles with the Erase tool.

With a system this powerful and software-expandable, I felt I would have to learn a whole new system, but that was not the case. Whether you've used the Mackie D8B or not doesn't matter: With the Digital X Bus, you can sit down, learn as you go and get lots of good work done right away. I found everything I needed to work and had plenty of workflow options available.

Even on my first use, there was a feeling of much higher precision, quality and performance with this console. I liked the way that the entire system was immediately accessible via an easy-to-understand and friendly interface. I look forward to benefiting from Mackie's continued development of this console, as the company has already announced future updates, application-specific additions and modifications. Prices: X.200, \$12,995; X.400, TBA.

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