

MOTU 828x Thunderbolt Audio Interface

Technical Specifications

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|-------------------------|---|
| Converters | 24-bit |
| Sample rates | 44.1, 48, 88.2, 96, 176.4, 192 kHz |
| Analog inputs | 2 x XLR/TRS combo-style mic/guitar inputs 8 x 1/4" TRS line inputs (balanced/unbalanced) |
| Analog outputs | 2 x XLR balanced main out 8 x 1/4" balanced TRS line out 2 x 1/4" TRS stereo headphone |
| Digital I/O | 16 channels of ADAT optical at 1x sample rates 8 channels of SMUX optical at 2x sample rates 2-channel TOSlink (optical S/PDIF) up to 96 kHz 2-channel RCA S/PDIF up to 96 kHz |
| Total I/O | 28 inputs and 30 outputs at 1x sample rates 20 inputs and 22 outputs at 2x sample rates 10 inputs and 10 outputs at 4x sample rates |
| Computer I/O | 1 x Thunderbolt (compatible with 1 and 2) 1 x USB 2.0 (compatible with 3.0) |
| Sync I/O | 1 x SMPTE time code in (LTC) 1 x SMPTE time code out (LTC) 1 x word clock in 1 x word clock out |
| Headphone output | 1 x 1/4" TRS stereo phone (assignable) 1 x 1/4" TRS stereo phone (mirrors main outs) |
| Phantom power | 2 x individual +48V |
| Front panel | 2 x XLR/TRS combo mic/guitar in 2 x 1/4" TRS phone 2 x digital rotary encoders • phone/main volume 2 x digital rotary encoders • mic trim 4 x switches • Pad and 48V Phantom 4 x digital rotary encoders for LCD control 2 x 16 character LCD 8 x 4-segment ladder LEDs • 1/4-inch analog in |

| | |
|--------------|---|
| | 8 x activity LED • 1/4-inch analog out 2 x 4-segment ladder LEDs • RCA S/PDIF in 2 x activity LED • RCA S/PDIF out 2 x 10-segment LEDs • mic in with V-Limit 2 x 5-segment ladder LEDs • main outs 6 x LED • sample rate indicator 1 x LED • LOCK/TACH indicator 2 x activity LEDs • optical bank A/B 1 x activity LED • MIDI in/out 1 x AC power switch |
| Power | International 100-240V autoswitching supply 50-60 Hz • 20 Watts |

Mac System Requirements

- A Mac with an Intel processor
- 1 GB RAM; 2 GB or more recommended
- Mac OS X version 10.6 or later required
- Available Thunderbolt or high-speed USB 2.0 (or 3.0) port
- USB cable included; Thunderbolt cable purchased separately
- A large hard drive (preferably at least 250 GB)

Windows System Requirements

- 1 GHz Pentium-based PC compatible or faster
- 1 GB RAM; 2 GB or more recommended
- Windows 8, 7 or Vista, 32- or 64-bit; Vista SP 2 or later required
- Available Thunderbolt or high-speed USB 2.0 (or 3.0) port
- USB cable included; Thunderbolt cable purchased separately
- A large hard drive (preferably at least 250 GB)

Included software

- [CueMix FX](#)
- [MOTU SMPTE Console](#)
- [AudioDesk](#) (Mac only, optical CD drive required)

Operating Systems

- Mac OS X version 10.6 or later
- Windows 8, 7 or Vista (SP2 or later is required)

64-bit operation

- Available for Mac OS X 10.6 or later
- Available for 64-bit versions of Windows 8, 7 or Vista
- Requires a 64-bit CPU



Compatible Mac software

The 828x ships with standard Core Audio and Core MIDI drivers for Mac OS X for compatibility with virtually all Core Audio-compatible (and Core MIDI-compatible) apps, including:

- [MOTU Digital Performer](#)
- [MOTU AudioDesk](#)
- Avid Pro Tools (version 9 or later)
- Apple Logic Pro
- Apple Logic Express
- Apple Garage Band
- Ableton Live
- Propellerhead Reason
- Steinberg Cubase
- Cockos Reaper
- Presonus Studio One
- Native Instruments Kontakt
- Waves stand-alone apps (and plug-ins, via compatible host)



Compatible Windows software

The 828x ships with standard Wave and ASIO drivers for Windows 8, Windows 7 and Windows Vista for compatibility with virtually all Wave-compatible audio apps, including:

- [MOTU Digital Performer](#)
- Avid Pro Tools (version 9 or later)
- Ableton Live
- Cakewalk Sonar
- Steinberg Cubase
- Propellerhead Reason
- Image Line FL Studio
- Sony Vegas Pro
- Sony Acid
- Presonus Studio One
- Cockos Reaper
- Native Instruments Kontakt
- Waves stand-alone apps (and plug-ins, via compatible host)

Feature Highlights

[Thunderbolt™ connectivity](#)

Take full advantage of all that Thunderbolt has to offer. Compatible with Thunderbolt 1 and 2.

[Don't have Thunderbolt yet?](#)

Connect to any Mac or PC using High-speed USB 2.0 (compatible with USB 3.0).

[28 inputs / 30 outputs \(at 44.1/48 kHz\)](#)

There's no channel sharing in the 828x; the mic inputs, S/PDIF I/O, headphone out and main outs all operate as separate channels.

[CueMix FX™](#)

Flexible 28 input/16 bus mixer with on-board DSP effects, including reverb with sends/returns, plus EQ and compression on every input and output.

[Front-panel control](#)

Access any setting in your entire 828x mix directly from the front panel.

[Stand-alone operation](#)

Program your mixes at the studio and then bring the 828x to your gig — no computer needed. Need to tweak the mix? Do it on site using the back-lit LCD and front-panel controls.

[Multiple CueMix FX mixes](#)

Create different monitor mixes for the main outs, headphones, or any other output pair. Or add send/return loops for outboard gear — with no latency. Up to 8 separate mixes are supported.

[Flexible mic/guitar inputs with preamps](#)

Two front panel combo jacks provide hi-Z 1/4" guitar input or XLR mic input with phantom power, pad and plenty of gain.

[Mic/guitar instrument sends](#)

Add your favorite outboard EQ, preamp, reverb or other processor to the two mic/guitar inputs, before the signal goes digital.

[V-Limit™ overload protection](#)

Mic/guitar input limiter prevents digital clipping and distortion from overloaded signal levels up to +12 dB over zero.

[Plentiful analog I/O](#)

Eight 24-bit 192kHz analog inputs and outputs on balanced/unbalanced 1/4" TRS jacks.

[Precision Digital Trim™](#)

Digitally controlled analog trim on all analog inputs (mic/guitar inputs + quarter-inch TRS inputs) provides accurate adjustments in 1 dB increments. Fine-tune the balance of your analog inputs and then save/recall trim configurations.

[Flexible optical I/O](#)

16 channels of ADAT lightpipe, 8 channels of SMUX (96 kHz) or two pairs of stereo TOSLink. Mix and match formats between the two banks.

[Sample-accurate MIDI](#)

Connect a MIDI controller and/or sound module with no separate interface needed. MIDI I/O is sample-accurate with supporting software.

Foot switch input

Connect a standard foot pedal switch (sold separately) for hands-free punch-in and punch-out while recording. Or map the pedal to any keystroke function in your host software.

[Expandable](#)

Add additional interfaces for more I/O as your needs grow.

[Separate main outs](#)

Connect your primary powered studio monitors to separate XLR main outs. Add additional monitor pairs connected to balanced TRS outputs. Control volume of all monitor pairs with the front panel MAIN VOL knob or your software.

[Two headphone outs](#)

One phone jack is assignable: operate as an independent output or mirror any other output pair. The 2nd phone jack always mirrors the main outs. Both have front-panel volume control.

[S/PDIF I/O](#)

Independent 24-bit RCA S/PDIF in/out at sample rates up to 96 kHz.

Word clock I/O

Resolve to external word clock sources at sample rates up to 192 kHz. Output word clock that matches current rate, or corresponding 1x rate when operating at 2x or 4x.

[Direct Digital Synthesis™ \(DDS\)](#)

DSP-driven phase lock engine and internal clock source produces imperceptibly low jitter characteristics (below the noise floor), even when the 828x is resolved to an external clock source via SMPTE time code.

[SMPTE time code in/out](#)

Dedicated Longitudinal Time Code (LTC) input and output. Resolve to time code with fast lockup times and sub-frame accuracy.

DC-coupled TRS outputs

Use the 828x with [Volta™](#) (sold separately) to manipulate and sequence voltage-controlled modular synthesizers from a host DAW.

[CueMix™ FX cross-platform mixing software](#)

Attractive on-screen graphic mixing with an instrument tuner and audio analysis tools including real-time FFT display, spectrogram "waterfall" display, oscilloscope, X-Y plot and linear or polar phase analysis.

[Universal compatibility](#)

Includes 32- and 64-bit native drivers for Mac OS X and Windows 8/7/Vista, including ASIO, WDM, Wave, Core Audio, and Core MIDI. Supports all popular Mac and Windows audio software.

[AudioDesk](#)

Full-featured workstation software for Mac with recording, editing, mixing, real-time 32-bit effects processing and sample-accurate sync.

[Plug and play operation](#)

Connect to your Mac or PC with Thunderbolt (1 or 2 compatible) or high-speed USB 2.0 (3.0 compatible).

Front panel volume control

Control stereo, Quad, 6.1, 7.1 or user-defined surround monitoring configurations.

[Comprehensive metering](#)

Front panel meters or activity LEDs for all analog, digital and MIDI I/O, plus SMPTE sync tach and lock LEDs.

Auto-switching power

International 100-240V, 50-60 Hz autoswitching power supply.

Chassis dimensions and measurements

Excluding rack ears and front and back panel knobs and connectors: 19 × 7 × 1.75 inches (48.26 × 17.78 × 4.45 cm). Knobs and connectors extend up to 0.5 inch (1.27 cm) from front and back panels, adding 1 inch (2.54 cm) to depth. With rack ears attached, fits standard 19 inch (48.26 cm) rack at 1U high.