

## E-Mu 1616M PCIe Mastering Grade PCI Express Card 24/192

### Technical Specifications

#### General

- Sample Rates: 44.1, 48, 88.2, 96, 176.4, 192kHz from internal crystal or externally supplied clock (no sample rate conversion)
- Bit Depths: 24 bit I/O, 32 bit processing
- PCIe Specification:
  - PCIe Base Specification 1.1 Compliant
  - Form Factor: Universal-keyed PCIe x1 Card
  - 3.3V I/O
  - PCIe Bus-Mastering subsystem reduces CPU usage
- E-MU E-DSP 32-bit DSP with 67-bit accumulator (double precision w/ 3 headroom bits)
- Hardware-accelerated, 32-channel mixing, and multi-effects processing
- Zero-latency direct hardware monitoring w/effects
- ASIO2, WDM/MME/DirectSound, x64 Drivers
- EDI (E-MU Digital Interface) proprietary 64-channel audio link over CAT-5 cable
- Anti-Pop speaker protection minimizes noise during power on/off
- Ultra-low jitter clock subsystem: < 1ns in PLL mode (44.1kHz, Opt. S/PDIF Sync)

#### Analog Line Inputs (4)

- Type: servo-balanced, DC-coupled, low-noise input circuitry
- A/D converter: AK5394A
- Level (software selectable):
  - Professional: +4dBu nominal, 20dBu max (balanced)
  - Consumer: -10dBV nominal, 6dBV max (unbalanced)
- Frequency Response (20Hz-20kHz): +0.0/-0.03dB
- Dynamic Range (1kHz, A-weighted): 120dB
- Signal-to-Noise Ratio (A-weighted): 120dB
- THD+N (1kHz at -1dBFS): -110dB (.0003%)
- Stereo Crosstalk (1kHz at -1dBFS): < -120dB Analog Line Outputs (6)

#### Analog Line Outputs (6)

- Type: balanced, AC-coupled, 2-pole low-pass differential filter
- D/A converter: CS4398
- Level (software selectable):
  - Professional: +4dBu nominal, 20dBu max (balanced)
  - Consumer: -10dBV nominal, 6dBV max (unbalanced)
- Frequency Response (20Hz - 20kHz): 0.0/-0.06dB
- Dynamic Range (1kHz, A-weighted): 120dB
- Signal-to-Noise Ratio (A-weighted): 120dB
- THD+N (1kHz at -1dBFS): -105dB (.0006%)

- Stereo Crosstalk (1kHz at -1dBFS): < -115dB

### **Combo Microphone Preamplifier/Hi-Z/Line Inputs (2)**

- Type: E-MU<sup>®</sup> XTC™ combo mic preamp and Hi-Z/line input w/ Soft Limiter
- Gain Range: +60dB
- Frequency Response (min gain, 20Hz-20kHz): +0.0/-0.1dB
- Stereo Crosstalk (1kHz min gain, -1dBFS): < -125dB
- Hi-Z Line Input:
  - Input Impedance: 1Mohm
  - Max Level: +18dBV (20.2dBu)
  - Dynamic Range (A-weighted, 1kHz, min gain): 118dB
  - Signal-to-Noise Ratio (A-weighted, min gain): 118dB
  - THD+N (1kHz at -1dBFS, min gain): -105dB (.0006%)
- Microphone Preamplifier:
  - Input Impedance: 1.5Kohms
  - Max Level: +6dBV (+8.2dBu)
  - EIN (20Hz-20kHz, 150ohm, unweighted): -129.5dBu
  - Signal-to-Noise Ratio (A-weighted, min gain): 119dB
  - THD+N (1kHz at -1dBFS, min gain): -110dB (.0003%)
  - Phantom Power: 48V
  - Soft Limiter: 5dB max compression (software selectable)

### **Headphone Amplifier**

- Type: linear power amplifier
- D/A converter: CS4398
- Gain Range: 85dB
- Maximum Output Power: 50mW
- Output Impedance: 22ohms
- Frequency Response (20Hz-20kHz): +0.0/-0.07dB
- Dynamic Range (A-weighted): 118.5dB
- Signal-to-Noise Ratio (A-weighted): 118dB
- THD+N (1kHz, max gain): 600ohm load: -96dB
- Stereo Crosstalk (1kHz at -1dBFS, 600 ohm load): < -100dB

### **Phono Input (stereo)**

- Type: RIAA equalized phono input
- Maximum level:
  - Professional: 60mV RMS
  - Consumer: 15mV RMS
- Input Impedance: 47Kohm
- Frequency Response (20Hz - 20kHz): +0.1/-0.3dB
- Dynamic Range (A-weighted): 96dB

- Signal-to-Noise Ratio (15mV RMS unbal input, A-weighted): 96dB
- THD+N (1kHz, 15mV RMS input): -90dB (.003%)
- Stereo Crosstalk (1kHz at -1dBFS): < -80dB

## Digital I/O

- S/PDIF:
  - 2 in/2 out coaxial (transformer coupled)
  - 2 in/2 out optical (software switched with ADAT)
  - AES/EBU or S/PDIF format (software selectable)
- ADAT:
  - 8 channels, 24-bit @ 44.1/48kHz
  - 4 channels, 24-bit @ 88.2/96kHz (S-MUX compatible)
  - 2 channels, 24-bit @ 176.4/192kHz
- MIDI
  - 2 in, 2 out

## Synchronization

- Internal crystal sync at 44.1, 48, 88.2, 96, 176.4, 192kHz
- External sample rate sync via
  - ADAT (44.1 - 192kHz)
  - Optical S/PDIF (44.1 - 96kHz)
  - Coaxial S/PDIF (44.1 - 192kHz)

## Retail Box Contents

- E-MU 1010 PCIe Card
- E-MU MicroDock M
- EDI (E-MU Digital Interface) cable (3 meters)
- Universal power adapter
- MIDI breakout cable
- Quick Start installation guide
- E-MU Digital Audio System CD-ROM
  - Microsoft® Windows® XP, XP x64, Windows Vista®, Vista x64 Drivers
  - E-MU PatchMix DSP
  - E-MU Power FX (Windows XP only)
  - E-MU E-DSP Effects Library - Owner's Manual and Tutorials
- E-MU Production Tools Software Bundle
  - Cakewalk SONAR LE 6.3
  - Steinberg Cubase 4 LE
  - Ableton Live Lite 6 E-MU Edition

- IK Multimedia AmpliTube LE
- IK Multimedia T-RackS EQ
- Celemony Melodyne essential
- Waldorf Attack, Waldorf D-Pole
- Waldorf PPG Wave
- SFX Machine LT
- Creative EAX® ADVANCED HD™ ALchemy (Vista only)
- E-MU Proteus VX

### **Minimum System Requirements**

- Intel® or AMD® processor - 1 GHz or faster
- Intel, AMD or 100% compatible motherboard & chipset
- Microsoft® Windows® XP (SP 3), Windows XP x64, Windows Vista® (SP1 or higher), Vista x64
- 256MB System RAM
- 900MB of free hard disk space for full installation
- PCIe x1 Compliant slot for E-MU 1010 PCIe card (also compatible with x4, x8 or x16 PCIe slots)
- CD-ROM/CD-RW or DVD-ROM drive required for software installation
- XVGA Video (1024 X 768)