

# Enova® DGX DXLink™ 4K60 Fiber Input Board

DGX-I-DXFP-4K60 (FG1061-624)



## Overview

The Enova DGX DXLink 4K60 Fiber Input Board is HDMI 2.0 and HDCP 2.2 compliant. It supports 4K60 4:4:4 video and High Dynamic Range (HDR) for pixel-for-pixel image reproduction without chroma subsampling. It has four inputs per board and receives audio, video, control, USB 2.0, and Ethernet over duplex fiber from a DXLink 4K60 Fiber transmitter up to 300 meters away. Each input includes a Multi-Mode Duplex (MMD) SFP, which can be replaced with a Single-Mode Duplex (SMD) SFP if needed. It is compatible with DGX 100-Series enclosures and benefits campus-wide distribution of sources between classrooms, military applications, casinos, arenas, and museums.

## Common Applications

The Enova DGX DXLink 4K60 Fiber Input Board is ideal for applications where the demands of high-resolution video clarity, long distance transmission and maximum security need to be met without compromise including campus-wide distribution of sources that are shared between classrooms, secure military applications, casinos, arenas, and museums.

## Features

- **Perfect 4K60 4:4:4 Video** - Ideal for users that can benefit from processing the full fidelity of their displays
- **High Dynamic Range (HDR) and Deep Color Support** – Support HDR10 and 36-bit per pixel deep color
- **HDMI 2.0 & HDCP 2.2** - Supports the latest video standards to realize the full capabilities of HDMI interfaces
- **USB 2.0** - High-speed USB 2.0 data from devices like web cameras and storage devices are transmitted without the need for separate cables.
- **As Always, Just One Cable** – Just like all current AMX DGX Fiber solutions, video, audio, and control are delivered over a single cable. Many competitive products require two or more cable runs which adds significant cost.
- **Hot Swappable** – Easily add or replace I/O boards at any time after deployment - the system automatically recognizes the new configuration and activates the boards.
- **Single MMD SKU** – All Fiber Modules include a Multi-Mode Duplex (MMD) SFP module. Customers may replace these with their own Single-Mode Duplex (SMD) module if needed.

## Specifications

GENERAL	
Compatible AMX Products	Must be used in conjunction with an Enova DGX 100 Series 800, 1600, 3200, or 6400 Digital Media Enclosure and a DXLink 4K60 Fiber Transmitter.  DXLink 4K60 Fiber Boards must be used with DXLink Fiber 4K60 Transmitters and Receivers.
Regulatory Compliance	See Enova DGX Digital Media Switcher Enclosure for regulatory compliance
Safety Certification	Class 1 Eye safe per requirements of IEC 60825-1 / FDA CDRH 21 CFR 1040
Recommended Accessories	DXLink 4K60 HDMI Fiber Transmitter Module FG1010-365-01 (DXFP-TX-4K60) or FG1010-365-02 (DXFP-TX-4K60-TAA)

Signal Transport – DXLink w/Multimode Fiber, Duplex	
Compatible Formats	HDMI Video, Audio, Ethernet, USB(HID), USB (2.0), Serial Control, and IR Control
Signal Type Support	DXLink Multimode Fiber, Duplex  NOTE: DXLink 4K60 Fiber boards ship with Multimode Duplex Fiber SFP+ modules installed. These can be field replaced with compatible 10G Single-mode Duplex Fiber SFP+ modules in applications where single-mode fiber is required.
Connectors	(4) Duplex LC Fiber Ports, conforming to ANSI TIA/EIA 604-10 (FOCIS 10A) (4) Mini-USB AB Ports
Transport Layer Throughput (Max)	10.3125 Gbps
Fiber Transceiver Type	10G SFP+
Fiber Cable Type	OM3 50/125µm
Fiber Cable Length	Up to 984 ft (300 m) with 2000MHz/km MMF
Optical Wavelength	850 nm
Multimode Optical Budget	<ul style="list-style-type: none"> <li>7.35 dB (typ), 3.75 dB (stressed) between DXLink Fiber Transceivers</li> <li>Transmitter Optical Modulation Amplitude (OMA): -3.75 dBm (typ)</li> <li>Receiver Optical Modulation Amplitude (OMA) Sensitivity: -11.1 dBm (typ), -7.5 dBm (stressed)</li> </ul>
Multimode Optical Transceiver Mean Output Power	-1 dBm (average power)
DXLink Fiber Output Board Propagation Delay	10 µs
Video Data Rate (Max)	18 Gbps
Video Pixel Clock (Max)	600 MHz
Resolution Support	480p up to 3840x2160 @ 60Hz 4:4:4 and 4:2:2 <ul style="list-style-type: none"> <li>3840x2160p@50/60 Hz, 4:2:0</li> <li>4096x2160p@50/60 Hz, 4:2:0</li> </ul>
Deep Color Support	24-bit, 30-bit, 36-bit  - 30 and 36-bit color are supported in CTA-861 formats up to 3840x2160p@30Hz 4:4:4; 3840x2160p@50/60Hz 4:2:2; 3840x2160p@50/60Hz 4:2:0  - 4096x2160p@24Hz, 25Hz, 30Hz only support deep color when using YCbCr 4:2:2 Chroma-Subsampling.  - Output of 30 and 36-bit color formats require any downstream DXLink DX-RX-4K60 Scaler to be placed in Bypass mode

Color Space Support	<p>sRGB, BT.601, BT.709, BT.2020</p> <p>RGB 4:4:4, YCbCr 4:4:4, 4:2:2 and 4:2:0</p> <p>- YCbCr 4:4:4, 4:2:2 and 4:2:0 will be output as RGB 4:4:4 when a downstream DXFP-RX-4K60 has its scaler enabled.</p> <p>- Output format color-space follows input format on non-scaled output boards</p>
4K Resolution Support	<ul style="list-style-type: none"> <li>• 3840x2160p@24/25/30/50/60 Hz 4:4:4 and 4:2:2</li> <li>• 3840x2160p@50/60 Hz, 4:2:0</li> <li>• 4096x2160p@50/60 Hz, 4:2:0</li> <li>• 4096x2160p@24/25/30 Hz, 4:4:4 and 4:2:2 - Must be used in conjunction with an Enova DGX 800, 1600, 3200 or 6400 Digital Media Enclosure built after June 1, 2016.</li> </ul>
HDR Support:	<p>Yes, HDR10 with ST.2084 EOTF</p> <p>- Requires the use of HDR compatible output board such as DXLink 4K60 Fiber Output or 4K60 HDMI Output Board</p>
Audio Format Support	<p>Dolby Atmos, Dolby TrueHD, Dolby Digital Plus, Dolby Digital, DTS-HD MA, DTS-HD High Resolution, DTS, 2 CH through 8 CH L-PCM</p> <p>- Dolby Digital and DTS support up to 48 kHz, 5.1 Channels</p> <p>- When a downstream DXFP-RX- 4K60 is in the signal path, audio formats other than 2CH LPCM and Dolby Digital 5.1 require the DXFP-RX-4K60 to have its scaler set to bypass.</p>
Audio Resolution	16 bit to 24 bit
Audio Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 96 kHz, 192 kHz
AIE Board Support	Yes, supports extraction of 2 CH LPCM
Audio Switching Board Support	<ul style="list-style-type: none"> <li>• Supports break-away audio switching of 2 CH L-PCM for all channels</li> <li>• Supports downmix from one input channel of Dolby Atmos, Dolby True-HD, Dolby Digital Plus, Dolby Digital, DTS-HD MA, DTS-HD High Resolution, DTS, or 2 to 8 channel L-PCM</li> </ul> <p>- Downmix supported on 4k video inputs with pixel clocks up to 297MHz (up to 3840x2160p @ 30Hz)</p>
HDCP Support	<p>Supports HDCP 1.x and HDCP 2.x for full matrix HDCP support (includes any input to any or all outputs)</p> <p>- HDCP 2.2 support required by input/output board for passage of HDCP 2.2 Premium Content</p> <p>- Key Management System</p> <p>- AMX HDCP InstaGate Pro Technology</p> <p>- Key support up to max 31 devices downstream on one output</p>
CEC Support	None
ICSP, TCP/IP, IR, Control Management	Control distribution is managed by the Enova DGX 800/1600/3200/6400 Digital Media Switcher on-board NetLinX NX Central Controller and Ethernet Switch
EDID Support	<p>EDID provided by the Enova DGX 100 Series 800/1600/3200/6400 Digital Media Switcher to the digital (HDMI) input on the connected DXLink Transmitter</p> <p>EDID is user re-programmable and can be copied from the display connected to the downstream DXLink Receiver.</p> <p>See "Instruction Manual Enova DGX Digital Media Switchers" for supported EDID list</p>

USB	
USB Transport	<p>USB HID and USB 2.0 are supported point-to-point to DXLink 4K60 HDMI Transmitters.</p> <p>The DXLink Output board is automatically configured as either Host or Device depending on the mode selected on the attached DXLink 4K60 Receiver</p>
USB 2.0 Speed	High-Speed, Full-Speed and Low-Speed Support
USB +5V Power	USB 2.0 Low Power Device Support, 100mA supply per Mini-USB Port

**About AMX by HARMAN**

Founded in 1982 and acquired by HARMAN in 2014, AMX® is dedicated to providing AV solutions for an IT World. AMX solves the complexity of managing technology with reliable, consistent and scalable systems comprising control, video switching and distribution, digital signage and technology management. AMX systems are deployed worldwide in conference rooms, classrooms, network operation/command centers, homes, hotels, entertainment venues and broadcast facilities, among others. AMX is part of the HARMAN Professional Group, the only total audio, video, lighting, and control vendor in the professional AV market. HARMAN designs, manufactures and markets premier audio, video, infotainment and integrated control solutions for the automotive, consumer and professional markets. ©2021 Harman. All rights reserved. Specifications subject to change.