

FPGA development board optical module



AI Overview

FPGA development boards with optical modules enable high-speed data transfer and real-time prototyping for applications like AI/ML, radar, and high-performance networking. Overview of Optical FPGA Boards FPGA boards with optical modules integrate high-speed optical interfaces such as SFP, QSFP, OSFP, and FireFly to facilitate data transfer between FPGAs and external systems. These boards are widely used in embedded systems, medical devices, aerospace, and AI/ML applications for real-time evaluation and testing. Key Types and Modules Samtec FireFly FMC/FMC+ Modules: 14 Gbps FireFly FMC™ Module: VITA 57.1 compliant, up to 140 Gbps full-duplex over 10 channels. 25/28 Gbps FireFly FMC+™ Module: VITA 57.4 compliant, up to 400–448 Gbps full-duplex over 16 channels. OAI EXP Module: 1.6 Tbps aggregate throughput using 16 low-power 25 Gbps x4 FireFly mid-board transceivers. Conduant PXle FPGA Boards: AMD Kintex UltraScale+ FPGAs with 24-channel optical I/O. Supports high-speed data streams up to 16.3 Gbps per lane. Front-panel MPO connectivity for rapid prototyping and real-time radar, RF, or video applications. EDT PCIe8 G3 Optical Boards: PCIe Gen3 x8 interface with 10G SFP/+ or 40G QSFP+ ports. Supports Ethernet (1/10/40GbE), OCx/OTU protocols, and SERDES for serialization/deserialization and clock recovery. Xilinx Virtex-7 Optical Networking Boards: HTG707 platform with Virtex-7 FPGA (X485T, X690T, V2000T). Interfaces include CFP, QSFP+, SFP+, FMC, DDR3, QDR II. Supports 10G, 40G, and 100G optical subsystems for high-performance networking. Applications High-speed networking: Optical modules enable multi-gigabit data transfer for 10G/40G/100G Ethernet and custom protocols. AI/ML systems: Low-latency, high-throughput optical interconnects support large-scale neural network processing. Radar and RF systems: Real-time signal processing with high-bandwidth optical I/O for telemetry and electronic warfare. Prototyping and testing: FMC/FMC+...

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XPedite2402 | Virtex-7 FPGA-Based Fiber-Optic I/O

XPedite2402 is an AMD (formerly Xilinx) Virtex-7 FPGA-Based Conduction- or Air-Cooled Fiber-Optic I/O XMC Module with up to 8 GB DDR3 SDRAM memory.

14 Gbps FireFly™ FMC™ Development Kit

As a VITA™ 57.1 FMC™, the Samtec 14 Gbps FireFly™ FMC™ Module can be used for optical data communication on any FPGA development board

High Performance Active Optics & Passive Optics

Halo® Next Gen Mid-Board Optical Transceivers IN DEVELOPMENT - Designed for next gen embedded applications demanding 56/112 Gbps PAM4 performance in

Data Communication Among Multiple FPGA Boards with GTP

This research work is to design a optical digital communication system with multiple FPGA boards, which can transmitted serially. In order to enable high-speed and reliable transmission

XPedite2570 | 3U VPX Kintex® UltraScale™ FPGA

XPedite2570 is a 3U VPX Kintex® UltraScale™ FPGA-based fiber-optic I/O module that optimizes cost and performance for high-bandwidth applications.

FireFly™ Mid-Board Optical Transceivers

As a VITA™ 57.1 FMC™, the Samtec 14 Gbps FireFly™ FMC™ Module can be used for optical data communication on any FPGA development board

Optics / FPGA Kits

On-board optical modules continue to gain acceptance in embedded, medical and mil/aero applications. Samtec offers a wide portfolio of FMC™, FMC+™ and

PXle FPGA Development Boards

Accelerate radar, RF, and high-speed video applications with Conduant's PXle FPGA boards—featuring AMD Kintex UltraScale+ FPGAs, 24-channel optical

DIY ECG With Discrete Analog Front End | Hackaday.io

A single-channel biopotential recorder designed for educational use. The analog front end is built entirely from discrete components for amplification and initial filtering. On the digital side, a Tang Nano 9K

FPGA-based CCD signal acquisition and transmission system design

The system uses an FPGA as the main control device, the TCD1304DG/AP chip as the optical signal detector, and the CYUSB3KIT-003 development board product by Cypress for data

25/28 GBPS FIREFLY FMC+ DEVELOPMENT KIT

As a VITA 57.4 FMC+ solution, the Samtec 25/28 Gbps FireFly™ FMC+ Module can be used for optical data communication on any FPGA development board supporting high-speed multi-gigabit

FPGA Xilinx Kintex-7 XC7K325T PCIe Dev Board -

This fpga development board features two 10G SFP optical ports and two Gigabit Ethernet ports, allowing seamless data communication for networking, telecom,

ALINX FPGA and SOC Solutions, Boards, SOMs, Kits, Modules

Alinx is a provider of FPGA and SoC Development Boards, Kits and System-on-Modules (SOM), IP cores, FMC cards provider, FPGA and SoC Solutions provider. With our products, you can both

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We develop and distribute highly-integrated FPGA & SoC modules/System-on-Modules (SoM), evaluation boards, and FPGA-optimized IP Cores. With our products, your problems are solved

SCFE6931 ACAP Processing Module | Mercury Systems

Dual Versal AI Core FPGA Processing Board The SCFE6931 leverages Versal™ ACAP (Adaptive Compute Acceleration Platform) technology from AMD® to

Standalone boards | optical Archives

Standalone boards | optical PCIe8 G3 A5-10G The PCIe8 G3 A5-10G is a fast, versatile low-profile PCI Express (PCIe, Gen3) x8 interface, available with either

FPGA Boards

Easily control and configure hardware and IP functions using our FPGA Navigator® design suite. Already proven on 150+ boards, our suite includes board support

FPGA Development Board for Test & Measurement

Open-Source FPGA Development Boards for Industrial Innovation Cut your development time with Red Pitaya — a compact, high-speed FPGA development

Virtex-7 10G/40G/100G Optical Networking

Powered by Xilinx Virtex-7 X485T, X690T, or V2000T FPGA, the HTG707 is a development platform that delivers the most fundamental functional blocks

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(PDF) Fingertip-Size Optical Module, "Optical I/O Core",

Optical I/O core based on silicon photonics technology and optical/electrical assembly was developed as a fingertip-size optical module with

FPGA Development Boards | Digilent

For entry-level or classroom use, focus on user-friendly development boards with built-in peripherals and tutorials. For professional or research projects, look for

Optics / FPGA Kits

Optics / FPGA Kits FPGA developers and system-level architects prototyping with industry-standard FPGA evaluation and development kits often leverage the

Comprehensive list of FPGA development boards

Below you'll find the lists, categorizing the boards according to a few attributes that I considered useful. If you have an idea for a category that I haven't listed, please let me know.

Contact Us

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