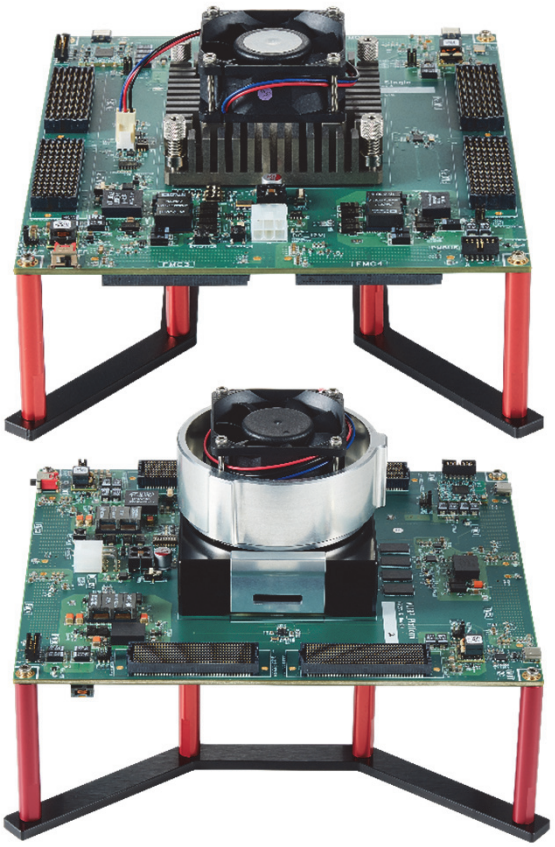
Leo SNS
System&Solution

Leo19P-Single FPGA Prototyping System

The Leo19P-Single System uses Xilinx® Virtex® UltraScale+™ FPGA XCVU19P-FSVA3824 to support up to 48 million ASIC Gates and 1976(HP) / 96(HD) / 48(GTY) I/O, and 32Gb of DDR4 Component Built-in memory provides design convenience. Leo19P-Single system is a complete and modular multi-FPGA solution, which meets highest requirements in the area of FPGA based Prototyping.

Key Features

- Xilinx Virtex UltraScale+ XCVU19P FPGA
- Delivers up to 48M equivalent ASIC gates
- 48 high-speed transceivers at 16Gbps
- 32Gb DDR4 64-bit component memory at up to 2,400Mb/s
- Multi-FPGA system configuration possible by combining with Duo base board
- Excellent expandability through 4 FMC+ and 4 FMC connectors



Description

Large Capacity & Scalability

- 8.94M System Logic Cells and 165.9Mb of internal memory
- One on-board 32Gb DDR4 64-bit component memory at up to 2,400Mb/s
- Multi Logic Systems can be implemented through the Duo Base Board

High Performance

- Delivers up to 48M equivalent ASIC gates
- HP I/O can run up to 1050Mbps(LVDS standard)
- High-speed transceivers can run up to 12.5Gbps
- Up to 200W of power for an FPGA

High Reliability

- Aluminum anodizing system stand
- Excellent heat dissipation system
- Application of 26-Layer 3.0t high-performance PCB
- High-speed, high-density Samtec FMC, FMC+ connector I/O interface

Flexible & Powerful I/Os

- 2,072 I/Os and 48 high-speed transceivers through 4 FMC+ and 4 FMC connectors
- I/O voltage can be set to 1.2V, 1.5V, 1.8V respectively through four independent power module
- Built-in 4 basic clock generators and 4 separate programmable clock generators

Leo SNS
3F, Seoam Building, 43, Seoun-ro, Seocho-gu, Seoul, Korea(06727)
Office 82.2.581.5510
Fax 82.2.581.5509
E-Mail leosns@leosns.co.kr
Home www.leosns.co.kr

Specification

FPGA Device

- AMD-Xilinx Virtex UltraScale Plus XCVU19P-1FSVA3824E
- Option1. 90x90 Heat-sink with FAN
- Option2. FPGA Socket with Heat-sink (built-in FAN)

Clock Source

- Si5335A quad clock generator
- Si570 I2C programmable LVDS clock generator
- 5P49V5901 programmable quad clock generator

Memory

- One 32Gb DDR4 64-bit component memory at up to 2,400Mb/s

User I/O

- 2 FMC+ HSPC connector with 24 GTY transceiver and 130 differential I/O
- 2 FMC+ HSPC connector with 286 differential I/O
- 4 FMC HPC connector with 202 differential I/O

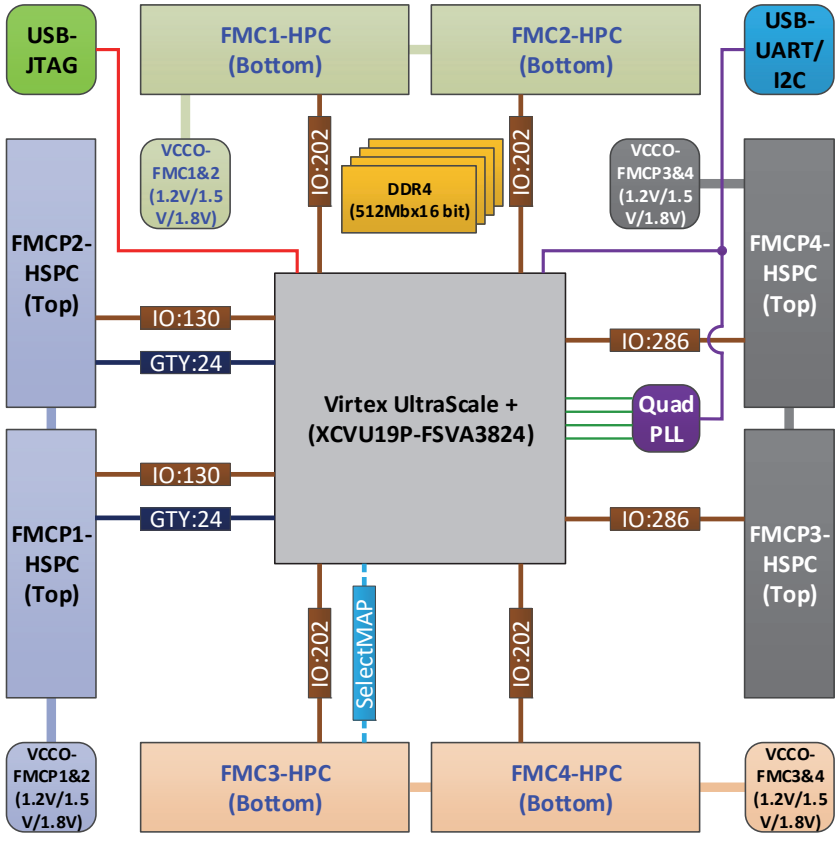
Debug Port

- Built-in USB JTAG Module for configuration and debugging
- USB to Serial dual channel interface (UART/I2C)
- 8 channel slide switch, 4 LED component

Power

- Four 1.2V/1.5V/1.8V selectable FPGA I/O power supply
- 12V 200Watts DC adapter provided

Block Diagram



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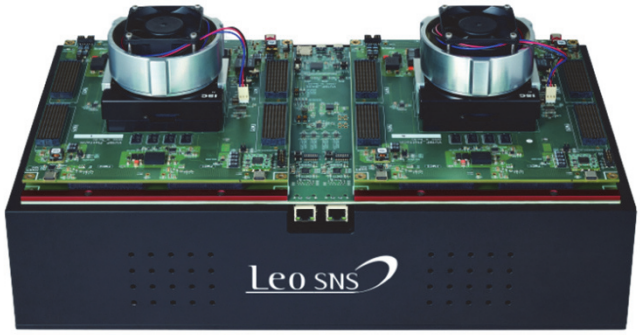
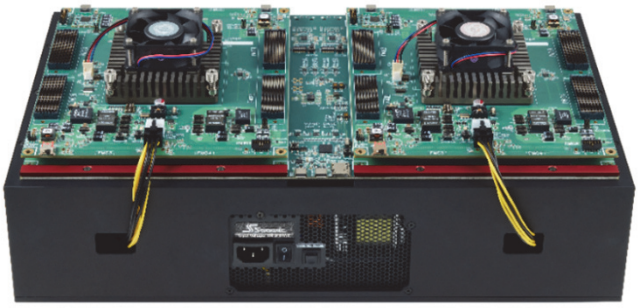
Leo19P-Duo FPGA Prototyping System

The Leo19P-Duo System uses two Xilinx® Virtex® UltraScale+™ FPGAs XCVU19P-FSVA3824 to support up to 96M ASIC Gates and 1,648(HP)/16(HD)/96(GTY) I/O and up to 64Gb of DDR4 Component memory is provided.
Leo19P-Duo system provides a multi-FPGA solution with two XCVP19Ps, enabling Expanded ASIC/SoC/AI/NPU/GPU prototyping.

Key Features

- Xilinx Virtex UltraScale+ XCVU19P FPGA
- Delivers up to 96M equivalent ASIC gates
- 96 high-speed transceivers at 16Gbps
- 64Gb DDR4 64-bit component memory at up to 2,400Mb/s
- Support high-speed SelecrMAP configuration via USB3.0 interface and µ-SD
- Excellent expandability through 8 FMC+ connectors





Description

Large Capacity & Scalability

- 17.88M System Logic Cells and 331.8Mb of internal memory
- One on-board 64Gb DDR4 64-bit component memory at up to 2,400Mb/s
- Multi Logic Systems using two Lwo19P-Single systems

High Performance

- Delivers up to 96M equivalent ASIC gates
- HP I/O can run up to 1050Mbps(LVDS standard)
- High-speed transceivers can run up to 12.5Gbps
- Up to 200W of power for each FPGAs

High Reliability

- Aluminum anodizing system case
- Excellent heat dissipation system
- Application of 26-Layer 3.0t high-performance PCB
- High-speed, high-density Samtec FMC+ connector I/O interface
- Built-in 750Watts full modular ATX power supply

Flexible & Powerful I/Os

- 1,664 I/Os and 96 high-speed transceivers through 8 FMC+ HSPC connectors
- I/O voltage can be set to 1.2V, 1.5V, 1.8V respectively through eight independent power module
- Built-in 8 basic clock generators and 12 separate programmable clock generators
- Two Gigabit Ethernet PHY

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- Option1. 90x90 Heat-sink with FAN
- Option2. FPGA Socket with Heat-sink (built-in FAN)

FPGA Configuration

- High-speed SelectMAP Configuration via USB3.0 interface and μ-SD

Clock Source

- Si5335A quad clock generator
- Si570 I2C programmable LVDS clock generator
- 5P49V5901 programmable quad clock generator

Memory

- One 64Gb DDR4 64-bit component memory at up to 2,400Mb/s

User I/O

- 4 FMC+ HSPC connector with 48 GTY transceiver and 260 differential I/O
- 4 FMC+ HSPC connector with 572 differential I/O

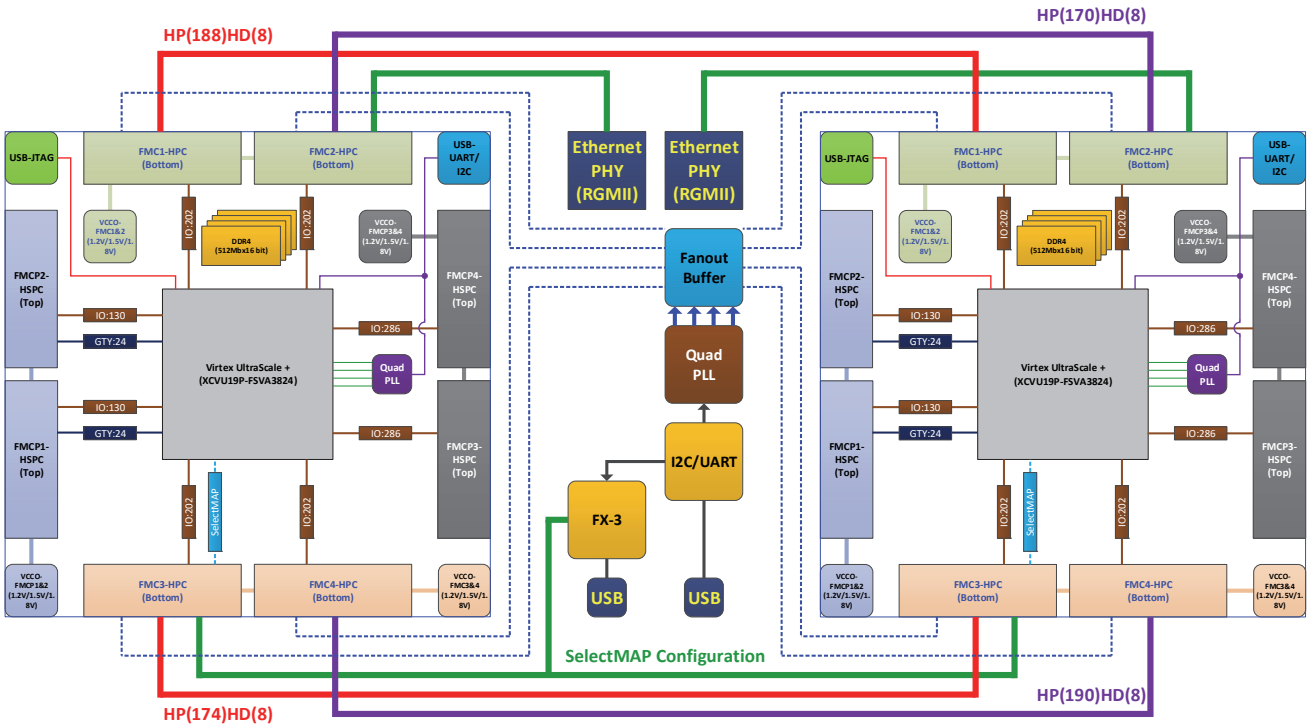
Debug Port

- Built-in USB JTAG Module for configuration and debugging
- USB to Serial dual channel interface (UART/I2C)
- 8 channel slide switch, 8 LED component
- Two Gigabit Ethernet PHY(RGMII, each FPGA)

Power & Case

- Four 1.2V/1.5V/1.8V selectable FPGA I/O power supply
- Built-in 750Watts Full Modular ATC Power Supply
- Full Aluminum Anodizing system case

Block Diagram



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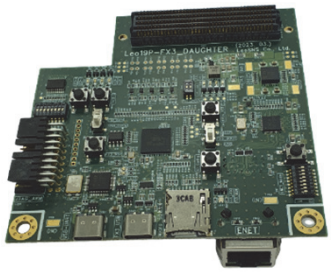
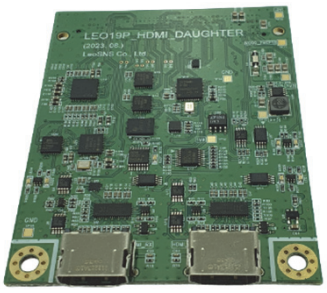
Leo19P FMC Mezzanine Card

FX3 & Ethernet FMC Card



- This product supports high-speed SelectMAP Configuration using the USB and µ-SD interface of FX3 chip.
- Gigabit Ethernet PHY IC applied.(VSC8531-02)
- ARM JTAG connector support
- Supports Slide /Tact Switch and LED for debugging

HDMI 2.1 FMC Card

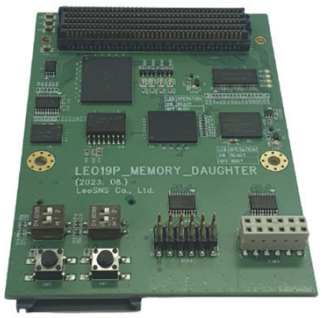


- This product is an FMC card ideal for testing HDMI Specification 2.1 compatible FRL and TMDS.
- 1ch of Sink, 1ch od Source

DiaplayPort 1.4 FMC Card

- The DisplayPort 1.4 FMC Card is the perfect FMC Card for evaluating DisplayPort Standard Version1 4. Supports 4 lanes: 1.62Gbps, 2. 7Gbps 5. 4Gbps, 8. 1Gbps.
- DisplayPort Driver IC: Texas Instruments, SN65DP141RLJR
- DisplayPort Retimer IC: Kinetic TechnologiesMCDP6000C1
- Megachips MCDP6000C1
- FMC connector: Samtec, ASP-134488-01

Memory FMC Card



- Parallel NAND FLASH : S34ML02G100BHI000 (Cypress)
- Serial NAND FLASH : MT29F2G01ABAGD12-AAT:G TR (Micron)
- EEPROM : BR24G16FV-3GTE2 (Rohm)
- Parallel NOR FLASH : MT28FW02GBBA1HPC-0AAT (Micron)
- Serial NOR FLASH : MT25QU512ABB8ESF-0SIT (Micron)
- eMMC : MTFC8GAMALNA-AIT (Micron)
- SDIO Interface : DM1AA-SF-PEJ(82) (Hirose)

Pcam 5C FMC Card

- Four Pcam system-side connectors
- Level translators from MIPI D-PHY to LVDS and LVCMOS
- FMC LPC connector for digital signals
- Compatible with a wide range of V_{ADJ} voltages (1.8V – 3.3V)

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