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SAMTEC PRODUCTS SUPPORTING XILINX® VIRTEX® ULTRASCALE+ FPGA VCU118 DEVELOPMENT KIT

SEARAY™ HIGH-SPEED ARRAY | **FIREFLY™** TWINAX SYSTEM
FLYOVER QSFP28 TWINAX SYSTEM | **FIREFLY™** 28 GBPS OPTICAL SYSTEM

FMC+ ACTIVE LOOPBACK CARD

This loopback mezzanine card was designed to be used in conjunction with the Xilinx® UltraScale+ VCU118 Development board and is included in the VCU118 Development Kit available from Xilinx®. The mechanical design of the loopback card is based on an elongated version of the VITA 57.4 single width mezzanine card. This same loopback card is also available from Samtec as a standalone product to aid in FMC+ development environments. This product is only available with Samtec's Flyover QSFP28 Twinax Cable Assembly (HDR-193805-01-ECUE) and aluminum faceplate attached.



REF-194194-01
(FMC+ Active Loopback Card)
Quote | Technical Documents | Technical Support

FMC+ CONNECTORS

Based on Samtec's SEARAY™ High-Speed Array system, FMC+ connectors are 560 I/O high-speed array connectors for FMC+carriers and daughter cards.

ASP-184329-01
(FMC+ socket connector on VCU118 board)
Sample | Quote | Print | Technical Support

ASP-184330-01
(FMC+ terminal connector on FMC+ Active Loopback Card)
Sample | Quote | Print | Technical Support

FMC CONNECTORS

Based on Samtec's SEARAY™ High-Speed Array system, FMC connectors are 400 I/O high-speed array connectors for FMC carriers and daughter cards.

ASP-134486-01
(FMC socket connector on VCU118 board)
Sample | Quote | Print | Technical Support

ASP-134488-01
(FMC terminal connector on FMC Loopback Card)
Sample | Quote | Print | Technical Support

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FIREFLY™ OVERVIEW

The Samtec FireFly™ Micro Flyover System™ is the first inside-the-box interconnect system that gives designers the flexibility of using either a high-performance FireFly™ Copper Twinax Cable or FireFly™ Active Optical Module to launch signals from a mid-board position of the designer's choosing. This "Flyover" design approach breaks the constraints of the traditional architecture of routing high-speed signals through lossy PCBs, vias and other components. The result is a cost-effective, high-performance answer to the challenges of routing 28 Gbps signals through the board.

THE PROBLEM:
PCB reach at next gen speeds:

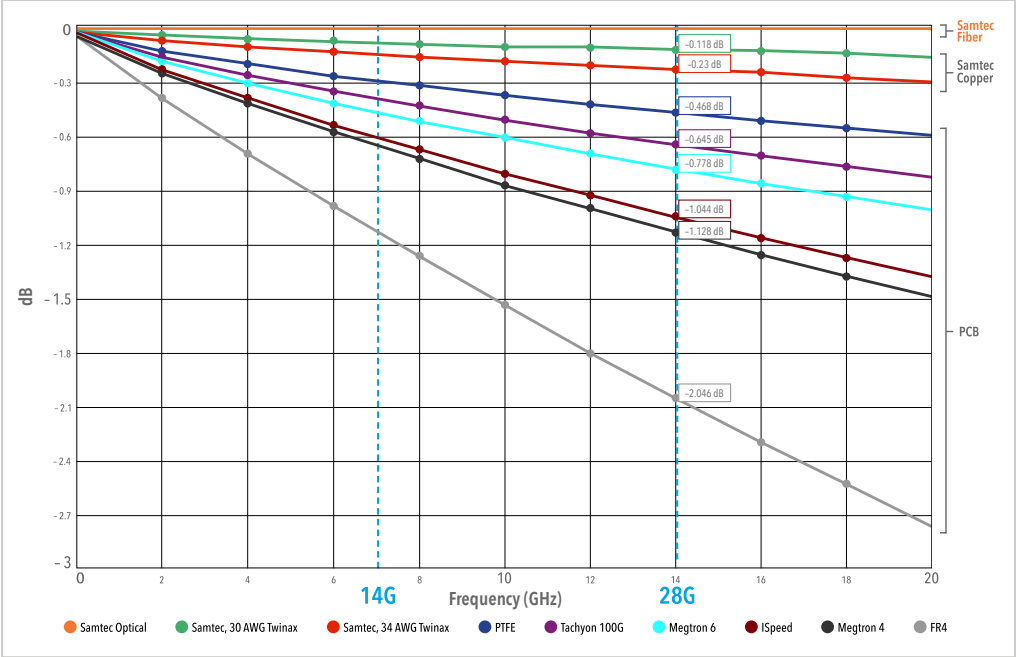
BANDWIDTH VS. TRADITIONAL & HIGH-SPEED MATERIALS

	FR408	MEGTRON 6	Micro Twinax	Optics
10 Gbps	<10"	10"+	10"+	10"+
14 Gbps	<5"	<10"	10"+	10"+
28 Gbps	<2"	<5"	10"+	10"+
56 Gbps	0.0"	<2"	10"+	10"+
112 Gbps	0.0"	0.0"	<10"	10"+

THE SOLUTION:
Samtec Twinax Cable or Optical Fiber based on Flyover Solutions for enhancing Signal Integrity.

"Fly" critical high-speed data over lossy PCBs, rather than through them with Samtec's innovative family of Flyover Solutions.

ULTRA LOW SKEW TWINAX AND FIBER VS. PCB TRACE LOSS IN DB PER INCH FOR 28G DESIGN



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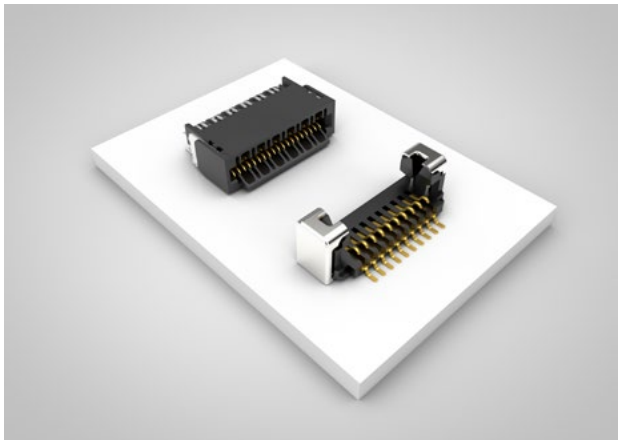


FIREFLY™ FEATURES

- Data "flies" over lossy PCB, simplifying board layout and enhancing signal integrity
- Compact size for placement close to the IC allowing drive voltages to be lowered resulting in reduced power consumption
- Interchangeability of FireFly™ Copper and Optical using the same connector system
- FireFly™ systems support data center and HPC protocols including; Ethernet, InfiniBand®, Fibre Channel and PCI Express®.
- Thermal operating conditions are optimized though an integral heat sink
- Easy insertion/removal simplifies the assembly process
- Many "End 2" options for the opposite end of the FireFly™ Copper cable to suit the designer's need (FireFly™, Direct Connect, direct attached FQSFP28)
- Variety of "End 2" options for the opposite end of the FireFly™ Optical cable to suit the designer's need (FireFly™, MTP, Ganged MT)

FIREFLY™ CONNECTORS

Samtec is introducing a second generation UEC5 edge card socket connector to optimize 28 Gbps performance and extend capability of the FireFly™ connector system up to 56 Gbps.

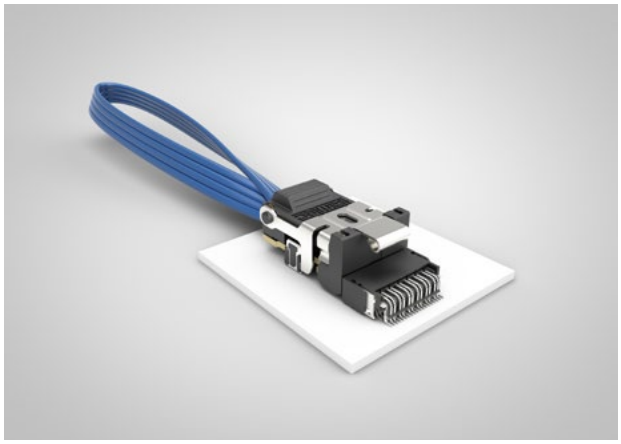


UEC5-019-2-H-D-RA-1
(FireFly™ Edge card socket connector on VCU118 board)
Sample | Quote | Print | Technical Support

UCC8-010-1-H-S-1-A
(FireFly™ Positive latching receptacle connector on VCU118 board)
Sample | Quote | Print | Technical Support

FIREFLY™ TWINAX CABLE ASSEMBLIES

The FireFly™ Loopback Cable assembly included in the VCU118 kit is for 28 Gbps high-speed verification. FireFly™ Twinax Cable Assemblies in standard and custom configurations with a variety of "End 2" options are available from Samtec.



HDR-190945-01-ECUE
(FireFly™ Loopback Cable Assembly included in VCU118 kit)
Sample | Quote | Print | Technical Support
Data Sheet | Mating / Unmating Instructions

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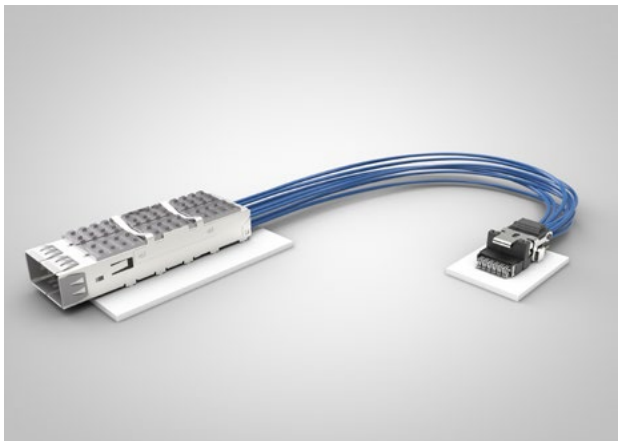


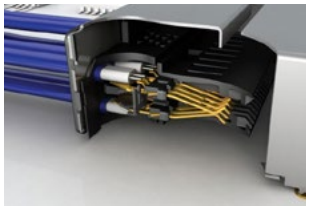
FLYOVER QSFP28 TWINAX CABLE ASSEMBLIES

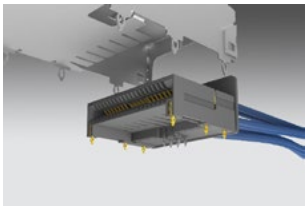
The direct attach Flyover QSFP28 cable assembly "flies" 28 Gbps high-speed signals over the PCB for improved and extended signal integrity at cable lengths beyond ten inches.

Flyover QSFP28 Cable Assemblies in standard and custom configurations are available from Samtec.

HDR-193805-01-ECUE
(Flyover QSFP28 to FireFly™ Cable Assembly on FMC+ Active Loopback Card)
Sample | Quote | Print | Technical Support



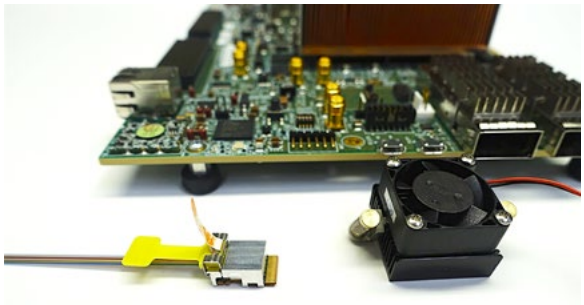


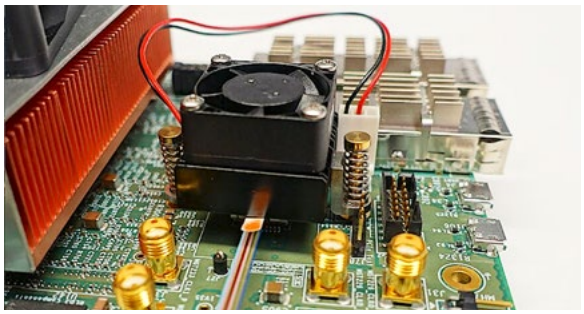


FIREFLY™ ACTIVE OPTICAL CABLE ASSEMBLIES

The Xilinx® VCU118 Development board has provisions to launch the Samtec FireFly™ Optical x4 28G Micro Flyover with fansink from the same FireFly™ connector system. This ECUO Series mid-board optics system is not included in the VCU118 kit but is available for purchase from Samtec. It offers performance to 28 Gbps in a x4 bidirectional design. FireFly™ Mid-Board Optics Systems in standard and custom configurations and various lengths up to 100 meters are available from Samtec.

REF-193848-01
(FireFly™ Optical x4 28G optional part available from Samtec for use on VCU118)
Sample | Quote | Technical Support
Mating / Unmating Instructions (with tool or with latch pin)
Fansink Termination





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