DATA SHEET

3U OPENVPX BACKPLANE ALIGNED WITH SOSA

12-Slots with Apertures for VITA 66 & 67 connectors

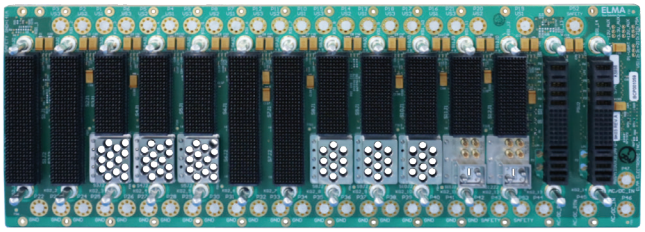
ELMA
Your Solution Partner

DESCRIPTION

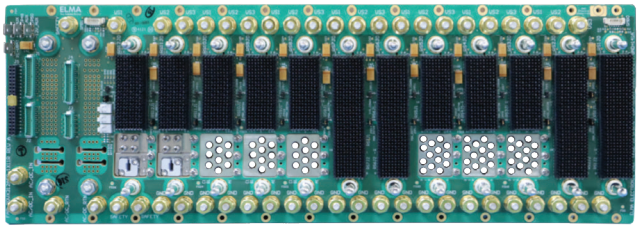
Designed to align with The Open Group® Sensor Open Standards Architecture™, or SOSA™, this 3U SOSA backplane offers 12 Plug in Cards (PICs) slots to support the defense industry's hardware and software convergence initiatives per the DoD's Modular Opens Systems Approach (MOSA). It is also designed to meet the U.S. Army's C5ISR Modular Open Suite of Standards (CMOSS) approach. It provides the foundation for high-performance mission-critical systems requiring lower lifecycle costs and rapid technology insertion. It enables complex, high speed signal processing systems with the latest optical fiber and RF connectivity as well as precision network timing (PNT), plus slot profiles for SBCs, switches, radial clock(s) and expansion.

The backplane supports high-speed signals on all data paths and VITA 67.3 connectors and VITA 66.5 optical and hybrid RF/optical connectors.

Developers can use the development backplane as configured or work with Elma to identify specific profile configuration needs.



FRONT VIEW



REAR VIEW

FEATURES

- Expansion Plane links support PCIe Gen 4 and Data & Control Planes links support 100GBASE-KR4 & 25GBASE-KR respectively
- 3U backplane with 12 PIC slots aligned to SOSA
- Slot profiles in alignment with the SOSA Technical Reference Standard 1.0
- Supports up to 100 Gigabit, dual domain Ethernet switch
- PNT slot profile SLT3x-TIM-2S1U22S1U2U1H-14.9.2
- Two versions available:
  - 12V only with +3.3V AUX (SOSA)
  - Full VS rails support 5V, 12V, 3.3V (legacy)
- Maintenance, serial ports, GPIO and CLK1 signals routed to several headers.
- IPMC header for external chassis manager (see pinout table below)

BOARD SPECIFICATIONS

- 24 layers
- 1 oz and ½ oz power and ground layers
- PCB Tachyon 100G
- PCB 0.212" thick

MECHANICAL SPECIFICATIONS

- 3U height
- 2 Switch slots, 1 Timing Slot, 9 Payload slots and 2 PSU slots
- 5.067" tall x 14.476" wide

BENEFITS

- Supports DoD's Modular Open Systems Approach (MOSA) initiative
- Supports current Ethernet and PCI Express standards
- Enables the development of a common, modular architecture across sensor-based, mission-critical C5ISR and EW systems
- Contributes to optimized SWaP requirements and lower life-cycle costs for rapid technology insertion

SOSA™
Sensor Open Systems Architecture
MEMBER

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PINOUT

SIGNAL	PIN #	PIN #	SIGNAL
N/C	2	1	N/C
N/C	4	3	N/C
+3.3V_AUX	6	5	+3.3V_AUX
N/C	8	7	N/C
N/C	10	9	+3.3V_AUX_SENSE
GND	12	11	GND
SENSE_RTN	14	13	+12V_SENSE
GND	16	15	GND
UD4_PSU1_HDR_3	18	17	GDISCRETE1
UD4_PSU1_HDR_4	20	19	PSU2_HDR_2

SIGNAL	PIN #	PIN #	SIGNAL
P1-VBAT	22	21	PSU1_HDR_1
NVMRO	24	23	SYSRESET#
PWR1_ENABLE_L	26	25	GND
GND	28	27	PWR2_ENABLE_L
PWR2_FAIL_L	30	29	PWR1_FAIL_L
N/C	32	31	GND
GND	34	33	NED_RETURN
PWR2_INHIBIT_L	36	35	NED
GND	38	37	PSU2_GA2_UD3_HDR
PSU1_GA2_UD3_HDR	40	39	N/C

TOPOLOGY

BACKPLANE DESIGN

This full featured backplane has cutting edge interconnect technology and a range of OpenVPX slot profiles aligned with SOSA guidelines.

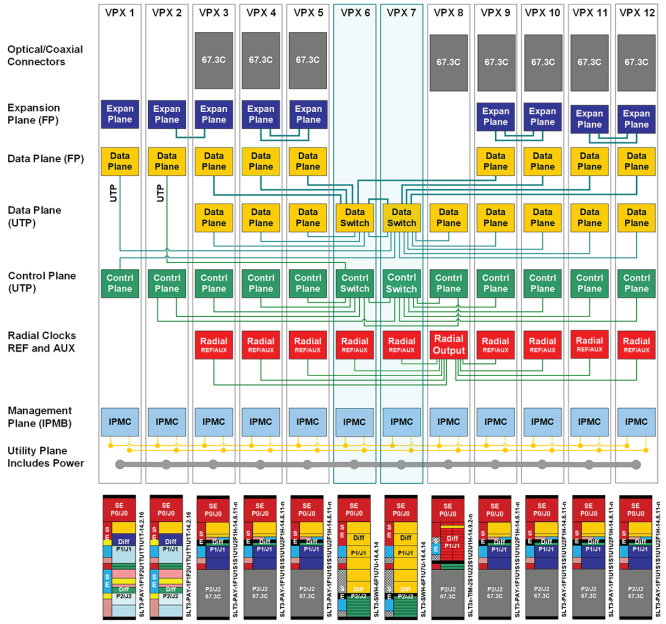
Slot profiles include:

Slots 1 and 2 (I/O Intensive SBCs): SLT3-PAY-1F1F2U1TU1T1U1T-14.2.16

Slots 6 and 7 (Copper Switches): SLT3-SWH-6F1U7U-14.4.14

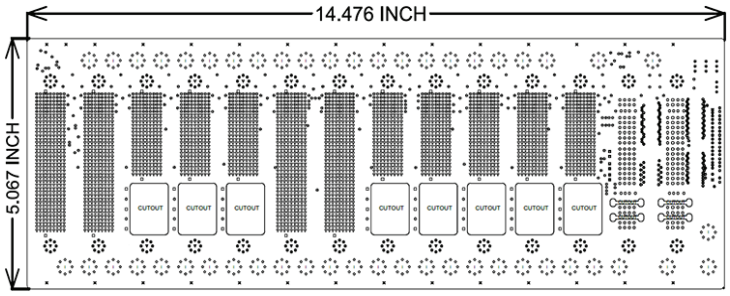
Slot 8 (Radial Clock PNT) : SLT3-TIM-2S1U22S1U2U1H-14.9.2-n

Slots 3, 4, 5, 9, 10, 11,12 (Primary Payload Slots): SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-n



OUTLINE

BACKPLANE DESIGN



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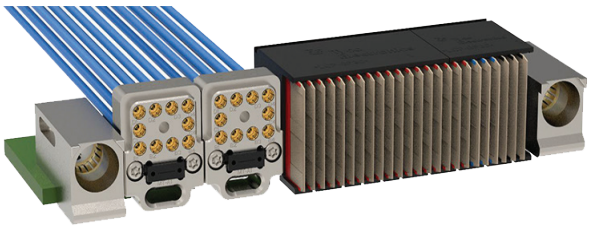
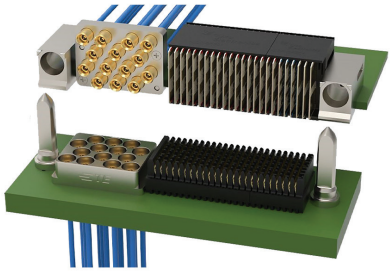
VITA 66.5 OPTICAL AND 67.3 RF CONNECTOR EXAMPLES

FOR USE IN BACKPLANE APERTURES



DOUBLE HYBRID

BACKPLANE

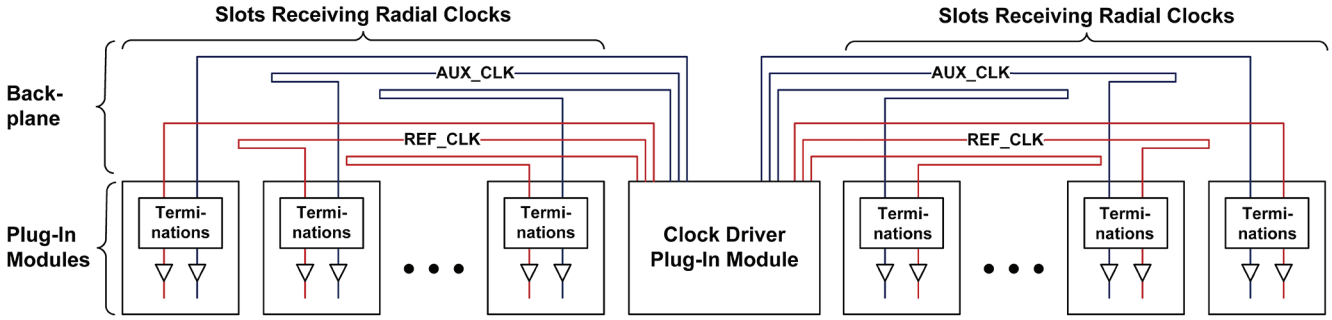


VITA67.3 C MODULE WITH
14 POS SMPM

PRECISE NETWORK TIMING

BACKPLANE DESIGN

The backplane supports a radial slot card for precision timing and synchronization.



EXPANSION PLANE

BACKPLANE DESIGN

Expansion Plane links supporting PCIe Gen 4 routed between 2-3, 4-5, 9-10 and 11-12; additional links can be routed to the rear of the backplane via RTM connectors using Meritec cables.

APPLICATIONS

OpenVPX backplanes in embedded computing systems enable high speed data communication in critical defense and industrial applications including but not limited to:

- Mission control
- Sensor based systems
- Surveillance
- Radar and other beamforming applications
- Weapons control
- Target tracking and display
- Navigational control
- Threat detection
- Process monitoring
- Environmental monitoring

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RELATED PRODUCTS

- Convection or conduction cooled load boards
- Rear Transition Modules for I/O
- Intel and ARM based Single Board Computers (SBCs)
- Ethernet switches
- 19" rackmount, rugged ATR and Small Form Factor enclosures and chassis platforms
- Ruggedization programs
- Cables, RF connectors, and optical connectors

ORDERING INFORMATION

Height	# Slots	Description	Power routed from VITA 62.x slots	Power routed for VITA 46 slots	Part Number
3U	12	12-slots 25Gb backplane aligned to SOSA, no VITA 66/67 modules installed, no conformal coating	+12V (on PO1+PO3), +3.3V_AUX (on PO2)	+12V (VS1 pins on J0), +3.3V_AUX (J0.E5)	1SVX312AFQ-1X31(R)*
3U	12	12-slots 25Gb backplane aligned to SOSA, no VITA 66/67 modules installed, with conformal coating	+12V (on PO1+PO3), +3.3V_AUX (on PO2)	+12V (VS1 pins on J0), +3.3V_AUX (J0.E5)	1SVX312AFQ-9K01(R)*
3U	12	12-slots 25Gb backplane support for SOSA profiles, no VITA 66/67 modules installed, no conformal coating	PO1, PO2 & PO3, +/-12V_AUX, +3.3V_AUX (on pins A4/B4/C4/D4)	VS1, VS2 & VS3, +/-12V_AUX, +3.3V_AUX pins on J0	1OVX312AFQ-1X11(R)*
3U	12	12-slots 25Gb backplane support for SOSA profiles, no VITA 66/67 modules installed, with conformal coating	PO1, PO2 & PO3, +/-12V_AUX, +3.3V_AUX (on pins A4/B4/C4/D4)	VS1, VS2 & VS3, +/-12V_AUX, +3.3V_AUX pins on J0	1OVX312AFQ-9K02(R)*
3U	12	12-slots 25Gb backplane support for SOSA profiles, VITA 67 modules installed, no conformal coating	PO1, PO2 & PO3, +/-12V_AUX, +3.3V_AUX (on pins A4/B4/C4/D4)	VS1, VS2 & VS3, +/-12V_AUX, +3.3V_AUX pins on J0	1OVX312AFQ-9004(R)*
3U	12	12-slots 25Gb backplane support for SOSA profiles, VITA 67 modules installed, with conformal coating	PO1, PO2 & PO3, +/-12V_AUX, +3.3V_AUX (on pins A4/B4/C4/D4)	VS1, VS2 & VS3, +/-12V_AUX, +3.3V_AUX pins on J0	1OVX312AFQ-9K03(R)*

Note: Backplanes starting with 1OVX in the table above are intended to support legacy PICs as well; backplanes starting with 1SVX only support 12V-centric PICs aligned to SOSA.

*RoHS-3 compliant assemblies of these part numbers are available upon request.

SOSA™ Sensor Open Systems Architecture MEMBER

MEMBER VITA Open Standards, Open Markets

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