SOSA ALIGNED INTERCONNECT SOLUTIONS

INCREASE POWER, SPEED AND BANDWIDTH WITH OPEN ARCHITECTURE SOLUTIONS

SOSA Aligned
Interconnect Solutions

The Sensor Open Systems Architecture (SOSA) Consortium is developing a common framework for transitioning sensor systems to an open systems architecture, based on key interfaces and open standards established by industry-government consensus. These systems are targeted for platforms across all major U.S. military branches. Using OpenVPX as its basis, SOSA helps ensure interoperability, improved subsystem SWaP-C, and rapid technology upgrades.

Setting the Standard

TE Connectivity (TE) has been a leader in interconnect solutions for OpenVPX and an active member of the SOSA Consortium. The products in this brochure are aligned with the SOSA™ Technical Standard and targeted for design for next generation sensor systems and rugged embedded computing applications.

SWaP: Reduce Size and Weight

Increase Power, Speed and Bandwidth with Open Architecture Solutions

Next-generation processors need next-generation connectivity to keep pace with the growing demand for bandwidth even as space, weight, and power savings become critical.

TE has been pushing the bandwidth envelope by adapting high-speed technology and combining it with our expertise in rugged packaging. The results are board-level interconnects that give you more performance in harsh military and aerospace applications.

Beyond Speed

TE is also reducing size through higher contact densities and supporting RF and optical interconnects at the board level allowing compact, high-speed box-to-box connectivity. TE has a full range of copper and fiber I/O connectors supporting data rates up to 32+ Gb/s.

Meeting the Needs of Battlespaces

We are meeting the demanding needs of battlespaces with ruggedized copper and fiber interconnect and cable assemblies. And we are helping to protect systems with lightweight shielding and EMI-immune datapaths.

TE is focusing our technology to minimize size, weight and power consumption, to increase bandwidth, and to enable open architecture systems.

VITA 46 MULTIGIG RT Connector System with Data Rates to 32+ Gb/s (Modular)
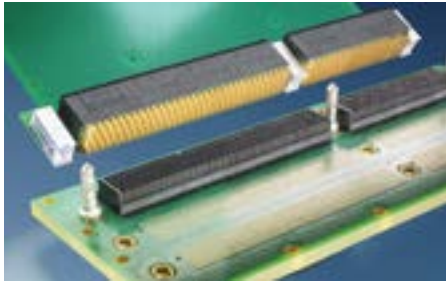
The MULTIGIG RT connector, the standard for VITA 46, represents a huge step forward in the world of rugged computing and C5ISR enabling technology. The connector series supports speeds to 32+ Gb/s, providing a comfortable performance margin in VPX applications. This modular connector system features a protected pinless backplane connector and wafer-based design in place of pin contacts. Wafers, available for differential, single-ended, and power needs, can be easily modified to support specific customer needs for characteristic impedance, propagation delay, and other electrical parameters. This lightweight connector system also offers built in ESD features, enabling field serviceability, and is fully qualified for VITA 47 environment classes.

RUGGED
- The standard for VITA 46 applications
- Modular connector system features a protected backplane connector

FAST
- Supports speeds up to 32+ Gb/s, providing a comfortable performance margin in VPX applications

FLEXIBLE
- Wafers are easily modified to support the need for propagation delay, characteristic impedance, and other electrical parameters
- Lightweight connector offers built-in ESD features enabling field serviceability

VITA 46 MULTIGIG RT 2-R Connectors (Ultra Rugged)
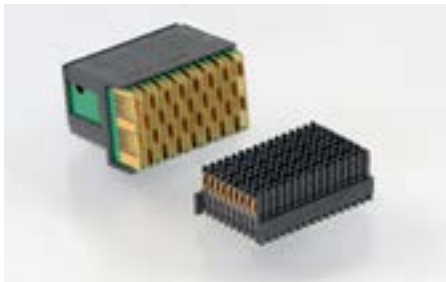
MULTIGIG RT 2-R connectors are an evolution of MULTIGIG RT 2 connectors, designed to offer even more ruggedness and reliability in demanding high-vibration environments. They go beyond VITA 47 environmental performance to meet the demanding vibration requirements of VITA 72. These connectors are specified for VITA 78 SpaceVPX fault-tolerant interoperable backplanes and modules. The lightweight connectors offer low outgassing and resist the growth of tin whiskers for high reliability in the challenging environment of space. Backward compatible to all existing VITA 46 daughtercards, rugged MULTIGIG RT 2-R connectors have a pinless interface tested to 10,000 mating/unmating cycles. The connector has been torture tested by exposing a 6U VPX test unit to random vibration levels of 0.2 g2/Hz for 12 hours.

EXTREME RUGGEDNESS
- Passes extreme requirements of VITA 72 Study Group
- Features a quad-redundant contact system for greater reliability in a high vibration environment
- Specified for VITA 78 SpaceVPX applications

ULTRA FLEXIBLE
- Compatible with standard MULTIGIG RT-2 connectors for VITA 46
- Optimized footprints for signal integrity and ease of board design
- Low outgassing

VITA 46 MULTIGIG RT 2-S and MULTIGIG RT 3 Connectors (Higher Speed)
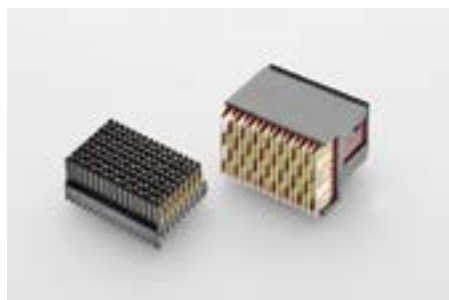
TE Connectivity's (TE) MULTIGIG RT 2-S and MULTIGIG RT 3 connectors are the next generation lightweight, rugged, high speed backplane connectors and meet the interface dimensions for VITA 46 VPX connectors. They are backward compatible with legacy MULTIGIG RT products and offer the same reliable ruggedized interface as MULTIGIG RT 2-R connectors. The new contact and wafer designs optimize signal integrity, extending data rates to 16-32+ Gb/s – supporting protocols such as PCIe Gen 4 and 100GBASE-KR4 Ethernet.

FAST
- Enhanced PCB wafer and contact design supports increased bandwidth up to 32+ Gb/s

FLEXIBLE
- Meets interface requirements for VITA 46 connectors allowing backward compatibility with legacy VPX products
- Customizable to meet unique application requirements

MODULAR
- Modular design enables numerous configurations by interchanging higher-speed MULTIGIG RT 3 connectors with the legacy MULTIGIG RT 2 and MULTIGIG RT 2-R connectors.

RUGGED
- Contact design utilizes quad redundant contacts for optimum performance in shock and vibration

DURABLE
- High durability tested for 10,000 mating/unmating cycle

|	MULTIGIG RT 2-R Connector	MULTIGIG RT 2-S Connector	MULTIGIG RT 3 Connector
SPEEDS	10+ Gb/s	16+ Gb/s	32+ Gb/s
RUGGEDIZED	✓	✓	✓
MATING CYCLES	500	500	500
QUAD-REDUNDANT CONTACT SYSTEM	✓	✓	✓
FLEXIBILITY WITH WAFER CONFIGURATION	✓	✓	✓
VITA 46 INTERMATEABLE	✓	✓	✓
PCB HOLE DIAMETER BACKPLANE (in mm)	0.56 (ref)	0.56 (ref)	0.37 (ref)
PCB HOLE DIAMETER DAUGHTERCARD (in mm)	0.46 (ref)	0.46 (ref)	0.32 (ref)
RELEASE DATE	2013	2019	2019
OPEN VPX STANDARD	VITA 46.0	VITA 46.0	VITA 46.30

VITA 46 VPX PART NUMBERS

Plug-In Module (Daughtercard)	RT 2 (10Gb/s)		RT 2-R (Rugged 10Gb/s)		RT 2-S (16+Gb/s)	RT 3 (32+Gb/s)	RT 3 P0 with Higher Speed
Position	Differential	Single Ended	Differential	Single Ended	Differential	Differential	Differential
P0	1410189-3		2102772-1		2102772-1 (RT 2-R)	2102772-1 (RT 2-R)	2332816-1
P1, 2, 3, 4, 5, 6	1410187-3	1410190-3	2102771-1	2102847-1	2302317-1	2302785-1	
Plug-In Guide Module	1-1469492-X		2000713-X		2000713-X	2000713-X	

| Backplane	RT 2 (10Gb/s)	RT 2-R (Rugged 10Gb/s)	RT 2-S (16+Gb/s)	RT 3 (32+Gb/s)	RT 3 J0 with Higher Speed
J0	1410186-1	2102735-1	2102735-1 (RT 2-R)	2102735-1 (RT 2-R)	2332817-1
J1, 3, 4, 5	1410140-1	2102736-1	2102736-1 (RT 2-R)	2302789-1	
J2, 6	1410142-1	2102737-1	2102737-1 (RT 2-R)	2302790-1	
Backplane Guide Pin	1-1469491-X	2000676-X	2000676-X	2000676-X	

See p. 6 for guide module and pin options.
MULTIGIG RT 2-S connectors are plug-in module only, and mate with RT 2, RT 2-R and RT 3 backplane connectors.
Part numbers with tin-lead plated tails are listed above. See TE drawings for RoHS options.
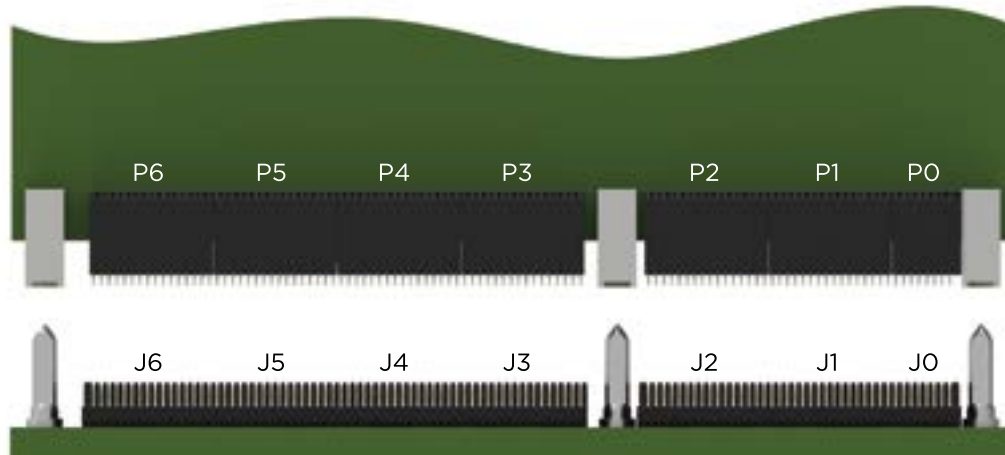
MODULES FOR VITA 66 AND 67 HALF MODULE 3U APPLICATIONS

VITA 66 or 67 Half Module

Position	RT 2 (10Gb/s)	RT 2-R (Rugged 10Gb/s)	RT 2-S (16+Gb/s)	RT 3 (32+Gb/s)
P0 + P1A	1410326-3	2286250-1	2345723-1	2313237-1
J0 + J1A	1410140-1	2102736-1	2102736-1 (RT 2-R)	2313238-1
P1B + P2A	1410187-3	2102771-1	2302317-1	2302785-1
J1B + J2A	1410142-1	2102737-1	2102737-1 (RT 2-R)	2302790-1
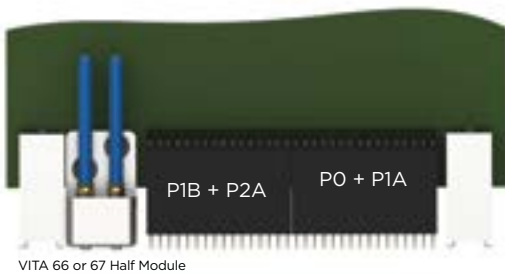
See p. 6 for guide module and pin options.
MULTIGIG RT 2-S connectors are plug-in module only, and mate with RT 2, RT 2-R and RT 3 backplane connectors.
Part numbers with tin-lead plated tails are listed above. See TE drawings for RoHS options.

Guide Hardware

VITA 46 GUIDE MODULES - KEYING OPTIONS

| Key Orientation (Degrees)	Standard (Diecast)	Rugged (Machined Aluminum)	Rugged (Machined Stainless Steel)
0	1-1469492-1	2000713-1	2000713-7
45	1-1469492-2	2000713-2	2000713-8
90	1-1469492-3	2000713-3	2000713-9
135		1-2000713-4	—
180		1-2000713-5	—
225		1-2000713-6	—
270	1-1469492-7	2000713-4	1-2000713-0
315	1-1469492-8	2000713-5	1-2000713-3
Without Keying	1-1469492-9	2000713-6	1-2000713-2

VITA 46 GUIDE PINS

Shoulder Depth into Backplane (DimJ)	Thread Length (Dim K)	Thread Type (External)	Rugged (Stainless Steel)	Diecast	Internal Thread Max Depth	Thread Type (Internal)	Rugged (Stainless Steel)
		External Thread			**Internal Thread**		
1.32	7.25	10-32 UNF	2000676-1		5.67	8-36 UNF	2327906-2
2.60	7.25	10-32 UNF	2000676-2	1-1469491-2	6.95	8-36 UNF	2327906-4
4.20	7.25	10-32 UNF	2000676-3	1-1469491-3	8.55	8-36 UNF	2327906-6
5.70	7.25	10-32 UNF	2000676-4	1-1469491-4	10.05	8-36 UNF	2327906-8
7.30	7.25	10-32 UNF	2000676-5		11.65	8-36 UNF	1-2327906-0
5.70	10.35	10-32 UNF	2000676-6				
3.40	9.00	M5 x 0.8 - 6g	2000676-7		7.75	M2 .5X.45	1-2327906-4
2.40	6.30	M5 x 0.8 - 6g	2000676-9		6.75	M2 .5X.45	1-2327906-8
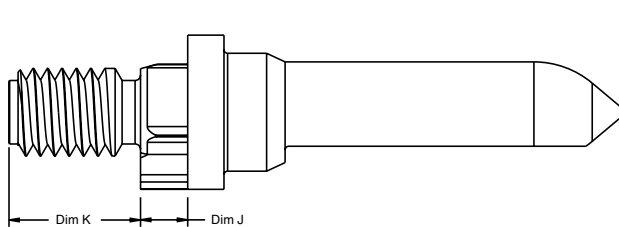
External Thread Guide Pins
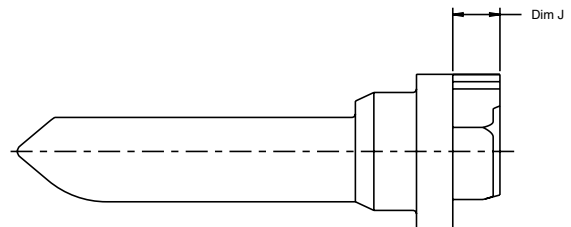
Internal Thread Guide Pins

VITA 66 (Optical) Connector Modules

TE Connectivity's (TE) Ruggedized Optical Backplane VITA 66 interconnect system provides a high-density, high-bandwidth, blind-mate optical interconnect in a backplane/daughtercard configuration. The fiber optic ribbon cable interconnect feeds through the backplane to removable system modules using MT ferrules. Designed for rugged embedded computing applications, the fiber optic connectors are compatible with VPX and other high-performance standards. Connector module designs support half and full size modules, with new, higher density variants now available.

TE's broad product line offers many possible configurations, including front panel MT connections to on board optical modules, direct attachment of transceivers to the bottom MT port, or to using a combination of optics and RF connections, all in a ruggedized blind mate structure.

RUGGED RELIABILITY
• Receptacle (backplane) connector includes two robust guide pins for blind mating

VERSATILE
• Modules support VITA 66.1, 66.4, and 66.5 draft standard
• Locating post features helps ensure proper positioning
• Ribbon cable feeds through backplane to removable system modules

VITA 67 (RF) Connector Modules
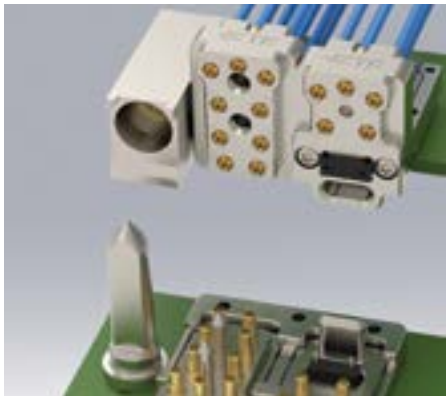
VITA 67 RF modules from TE are modular systems designed for backplane/daughtercard multi-coax contact mating within a robust platform to withstand the mechanical rigors of military and aerospace applications. They are also fully compatible with VPX packaging to make it easy and convenient to achieve RF connectivity within an open architecture.
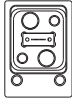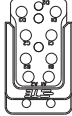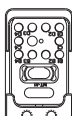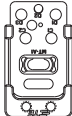
The contacts tolerate generous misalignment to allow blind mating and are configured to eliminate the possibility of stubbing. The contacts are housed in robust stainless steel or aluminum modules, providing RFI/EMI shielding between the RF contacts and a high level of adjacent channel isolation of at least 100 dB up through 40-70 GHz.

TE offers SMPM contacts/modules and new higher density NanoRF modules, supporting 2-3 times the density of VITA 67 SMPM RF modules. Half and full size NanoRF module sizes can retain up to 12 or 19+ RF contacts, with options for customizing contact count and position.

The NanoRF interface features a floating insert to pre-align RF contacts before engagement. Radial and axial contact float assures final alignment of the contacts and keeps the contacts fully engaged for excellent RF performance under harsh environments. The contact design supports frequencies up to 70 GHz, and is designed to terminate to standard .047″ and .086″ semi-rigid and flexible cables.

VERSATILE
• Modular design fully compatible with VPX packaging permits application specific configuration
• Available with SMPM contacts/ modules and new higher density NanoRF modules

RELIABLE
• Float mounted jack maintains positive RF ground
• Contacts tolerate generous misalignment to allow blind mating
• Contacts housed in robust stainless steel or aluminum modules

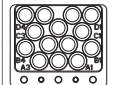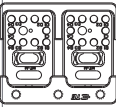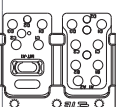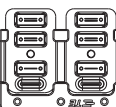| VITA 65 Module Designation	Backplane Module Layout		Connector Module PN	RF Contact PN (.086" Cable)	RF Contact PN (.047" Cable)	MT Ferrule Kit PN	Optical Plug-In Card Interface
6.4.5.7.1	VITA 66.4 (1 MT)	Plug-In Module	2226881-1	—	—	2102866-2 (std grade) 2313212-2 (low loss)	Cabled MT
		Backplane	2828736-1	—	—	2102866-1 (std grade) 2313212-1 (low loss)	—
6.4.5.7.2	9 pos NanoRF	Plug-In Module	2357976-1	—	2302339-1 (9 ea)	—	—
		Backplane	2357971-1	2332772-1 (8 ea)	2302345-1 (1 ea)	—	—
6.4.5.7.5	Style B 66.5 Insert (2 MT)	Plug-In Module	2371597-1	—	—	12-fiber: 2355002-1 / 24-fiber: 2355002-2	2 cabled MT
			2371598-1	—	—	12-fiber: 2355002-1 / 24-fiber: 2355002-2	1 cabled MT & 1 transceiver
		Backplane	2371602-1	—	—	12-fiber: 2332756-1 / 24-fiber: 2332756-2	—
6.4.5.7.4	Style C 66.5 Insert with 10 NanoRF	Plug-In Module	2359410-1	—	2302339-1 (10 ea)	12-fiber: 2355002-1 / 24-fiber: 2355002-2	Cabled MT
			2313388-1	—	2302339-1 (10 ea)	—	Transceiver
		Backplane	2313391-1	—	2302345-1 (10 ea)	12-fiber: 2332756-1 / 24-fiber: 2332756-2	—
6.4.5.7.3	Style C 66.5 Insert with 5 NanoRF	Plug-In Module	2359407-1	—	2302339-1 (5 ea)	12-fiber: 2355002-1 / 24-fiber: 2355002-2	Cabled MT
			2358435-1	—	2302339-1 (5 ea)	—	Transceiver
		Backplane	2358431-1	2332772-1 (4 ea)	2302345-1 (1 ea)	12-fiber: 2332756-1 / 24-fiber: 2332756-2	—
6.4.5.7.6	Style D 66.5 Insert (3 MT)	Plug-In Module	2371599-1	—	—	12-fiber: 2355002-1 / 24-fiber: 2355002-2	3 cabled MT
			2362125-1	—	—	12-fiber: 2355002-1 / 24-fiber: 2355002-2	2 cabled MT & 1 transceiver
		Backplane	2362124-1	—	—	12-fiber: 2332756-1 / 24-fiber: 2332756-2	—

RF and Optical Connector Modules
## Full Module VITA 65 Aperture H Backplane per VITA 67.3D

VITA 65 Module Designation	Backplane Module Layout			Connector Module PN	RF Contact PN (.086" Cable)	RF Contact PN (.047" Cable)	MT Ferrule Kit PN	Optical Plug-In Card Interface
6.4.5.6.1		VITA 67.1 and VITA 66.4 hybrid	Plug-In Module	2157339-4 (P2A) 2226881-1 (P2B)	1996390-1	1996771-1	2102866-2 (std grade) 2313212-2 (low loss)	Cabled MT
			Backplane	2828423-1 (SMPM rear cable attach) 2828775-1 (OSMM rear cable attach)	—	—	2102866-1 (std grade) 2313212-1 (low loss)	—
6.4.5.6.2		9 pos SMPM	Plug-In Module	2332834-1	2101012-1	2157248-1	—	—
			Backplane	2332832-2	1996390-1	1996771-1	—	—
6.4.5.6.3		10 pos SMPM	Plug-In Module	2323863-3	2101012-1	2157248-1	—	—
			Backplane	2323763-2	1996390-1	1996771-1	—	—
6.4.5.6.4		14 pos SMPM	Plug-In Module	2332829-3	2101012-1	2157248-1	—	—
			Backplane	2332827-2	1996390-1	1996771-1	—	—
6.4.5.6.9		2 Style C 66.5 inserts with 20 NanoRF	Plug-In Module	2359410-1 (2 ea)	—	2302339-1 (20 ea)	12-fiber: 2355002-1 / 24-fiber: 2355002-2	Cabled MT
				2313388-1 (2 ea)	—	2302339-1 (20 ea)	—	Transceiver
			Backplane	2378048-1	—	2302345-1 (20 ea)	12-fiber: 2332756-1 / 24-fiber: 2332756-2	—
6.4.5.6.8		1 Style C 66.5 insert with 14 NanoRF	Plug-In Module	2359407-1 + 2357976-1	—	2302339-1 (14 ea)	12-fiber: 2355002-1 / 24-fiber: 2355002-2	Cabled MT
				2358435-1 + 2357976-1	—	2302339-1 (14 ea)	—	Transceiver
			Backplane	2378047-1	2332772-1 (12 ea)	2302345-1 (2 ea)	12-fiber: 2332756-1 / 24-fiber: 2332756-2	—
6.4.5.6.x		6 Optical	Plug-In Module	2371599-1 (2 ea)	—	—	12-fiber: 2355002-1 / 24-fiber: 2355002-2	3 cabled MT per insert
				2362125-1 (2 ea)	—	—	12-fiber: 2355002-1 / 24-fiber: 2355002-2	2 cabled MT & 1 transceiver
			Backplane	2378055-1	—	—	12-fiber: 2332756-1 / 24-fiber: 2332756-2	—

Rugged Mezalok HS (32+ Gb/s) Mezzanine Connectors
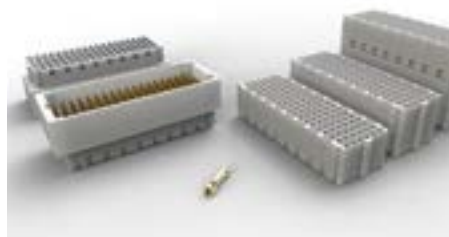
TE's Mezalok mezzanine connectors are designed for stacking or mezzanine applications for rugged embedded computing. The connectors incorporate a multi-point redundant box contact system for a separable interface, and the 114 position connectors are compliant with VITA 61.0 XMC standard. Stack height options are 10, 12, 15, 17 and 18 mm. Mezalok connectors are shock and vibration resistant per VITA 47 and 72 HALT test requirements. Featuring a wide operating temperature range, excellent thermal stability, and data rates to 32+ Gb/s, these rugged and highly versatile connectors are ideal for high-speed embedded computing applications. Installation of Mezalok connectors is easily accomplished using standard ball grid array (BGA) surface mount processes.

RUGGED
- Surface-mount mezzanine connector with 500 mating cycle durability
- Superior thermal cycling stability—2000 thermal shock cycles -55°C to +125°C
- Anti-stubbing design prevents mis-mating

VERSATILE
- 114 position in 10, 12, 15, 17 and 18 mm stack heights
- Support single-width and double-width mezzanine cards

HIGH PERFORMANCE
- Redundant box contact system provides four points of contact for ultra-reliability
- High-temperature polymer housings offer superior thermal stability and low outgassing
- Compliant BGA board-attach supports standard surface mount processing and thermal stability
- Supports data rates up to 32+ Gb/s

UPCOMING NEXT GENERATION VITA 61 PRODUCTS
- Lower mating/unmating force version of socket connectors
- Backward compatible to existing VITA 61
- Low force with 47% less extraction force

XMC 2.0 Connector and Stack Height (mm)		50 Microinch Gold Mating		30 Microinch Gold Mating	
		Tin-Lead BGA	Lead Free BGA	Tin-Lead BGA	Lead Free BGA
Pin Connector		2102060-1	2102060-2	2102060-3	2102060-4
Socket Connector	10	2102061-1	2102061-2	2102061-5	2102061-6
	12	2102061-3	2102061-4	2102061-7	2102061-8
	15	1-2102061-3	1-2102061-4	1-2102061-5	1-2102061-6
	17	1-2102061-7	1-2102061-8		
	18	2102061-9	1-2102061-0	1-2102061-1	1-2102061-2

VITA 62 Power Supply Connectors

The MULTI-BEAM XLE power connector, specified for the VPX VITA 62 power supply standard, offers 50 A and 20 A power contacts as well as signal pins within the same connector assembly. The design is hot pluggable, tolerates mating misalignment, and supports VPX architecture.

Higher input voltage of 270V DC is required for select applications, including altitudes of 60-70k ft for military avionics. New VITA 62.1 (3-phase) and 62.2 (standard) connector variations meet creep/clearance distance requirements, with slots required in the boards between contacts. "Fins" are inserted between power contacts and penetrate through the board slots to increase breakdown voltage.
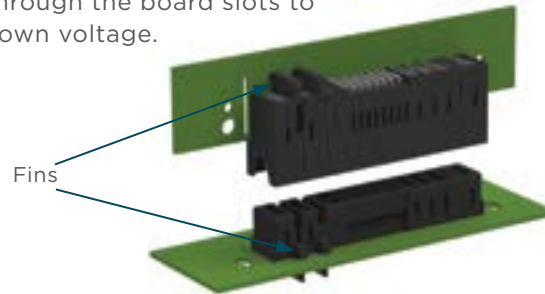
HIGH PERFORMANCE
- 20 A and 50 A power contacts, plus signal contacts
- 3-beam high-conductivity-copper contact design
- Hot-plug capable
- 270VDC applications supported by connectors with isolating fins (VITA 62.2)
- 3-phase power configurations (VITA 62.1)

Fins

270V DC Connector

	Slot Size	Position	Part Type	Contact Tail	Part No	Fins for Higher Voltage Application
VITA 62.0	3U	P0	RA Header	Solder Tail	2317477-1	
	3U	P0	RA Header	Compliant Pin	2314578-2	
	3U	J0	Vert Recpt	Compliant Pin	2309390-1	
	6U	P0	RA Header	Solder Tail	2314579-1	
	6U	P1	RA Header	Solder Tail	2314580-1	
	6U	P0	RA Header	Compliant Pin	2314577-1	
	6U	P1	RA Header	Compliant Pin	2314578-1	
	6U	J0	Vert Recpt	Compliant Pin	2314581-1	
	6U	J1	Vert Recpt	Compliant Pin	2309390-2	
VITA 62.2 270VDC	3U	P0	RA Header	Solder Tail	2313443-1	2313445-1 (2 per)
	3U	P0	RA Header	Compliant Pin	2313442-1	2313445-1 (2 per)
	3U	J0	Vert Recpt	Compliant Pin	2313441-1	2313444-1 (2 per)
	6U	P0	RA Header	Solder Tail	2364867-1	2313445-1 (6 per)
	6U	P0	RA Header	Compliant Pin	2348886-1	2313445-1 (6 per)
	6U	J0	Vert Recpt	Compliant Pin	2348888-1	2313444-1 (6 per)
VITA 62.1 3-phase	3U	P0	RA Header	Solder Tail	2332791-1	2313445-1 (6 per)
	3U	P0	RA Header	Compliant Pin	2332793-1	2313445-1 (6 per)
	3U	J0	Vert Recpt	Compliant Pin	2332795-1	2313444-1 (6 per)

I/O Interconnect

SENSOR CLASSES

Class	Sensor Package Diameter
Class 1	>19 in.
Class 2	13 to 19 in.
Class 3	9 to 13 in.
Class 4	6 to 9 in.
Class 5	<6 in.
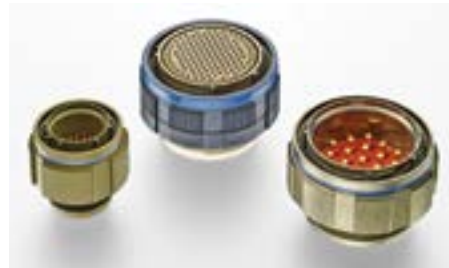
RELIABLE
- Self-locking threaded coupling
- 100% scoop proof
- Contact retention system provides excellent contact retention under severe vibration

EMI PROTECTED
- Grounding fingers for excellent EMI protection
- Metal-to-metal bottoming for maximum EMI grounding protection
- Connector is grounded when the shells meet, even before the contacts are engaged
- Trapezoidal thread for excellent shell-to-shell continuity

VERSATILE
- Variety of shell materials and finishes
- Wide range of backshells and accessories

MICRO-D CONNECTORS
- Current rating – 3 amps max per contact
- Mating force maximum is 10 oz. (2.78N) times the number of contacts
- Low engaging force

CLASS 1 AND 2

		J1 DC Power	J2 Signal	J3 Video (Copper)	
	Modality Support	All	All	EO-IR, Communications	
	Type	MIL-DTL-38999/ Series III	MIL-DTL-38999/ Series III	MIL-DTL-38999/ Series III	
	Shell Size	21	25	21	
	Sensor LRU Gender	Receptacle with Pin Inserts	Receptacle with Socket Inserts	Receptacle with Socket Inserts	
	Platform Umbilical Gender	Plug with Socket Inserts	Plug with Pin Inserts	Plug with Pin Inserts	
	Keying	N	N	N	
	Insert	21-11	25-7	21-11	
Sensor LRU (Box Mount)	Connector PN(s)	D38999/26*G11SN	D38999/20*J7PN	D38999/20*G11SN	
	Contact PN(s)	Included	Included	Included	
Umbilical (I/O Cable)	Connector PN(s)	D38999/26*G11SN	D38999/26*J7SN	D38999/26*G11PN	
	Contact PN(s)	Included	Included	Included	

CLASS 3

		J1 DC Power	J2 Signal	J3 Video (Copper)	
	Modality Support	All	All	EO-IR, Communications	
	Type	MIL-DTL-38999/ Series III	MIL-DTL-38999/ Series III	MIL-DTL-38999/ Series III	
	Shell Size	19	19	17	
	Sensor LRU Gender	Receptacle with Pin Inserts	Receptacle with Socket Inserts	Receptacle with Socket Inserts	
	Platform Umbilical Gender	Plug with Socket Inserts	Plug with Pin Inserts	Plug with Pin Inserts	
	Keying	N	N	N	
	Insert	19-11	19-35	17-6	
Sensor LRU (Box Mount)	Connector PN(s)	D38999/20*F11PN	D38999/20*F35SN	D38999/20*E6SN	
	Contact PN(s)	Included	Included	Included	
Umbilical (I/O Cable)	Connector PN(s)	D38999/26*F11SN	D38999/26*F35PN	D38999/26*E6PN	
	Contact PN(s)	Included	Included	Included	

CLASS 5

	MCKS	N1	B	25	
Cabled Connectors	MCKS Series	N1: Electroless Nickel C2: Yellow Chromate	B: No Hardware	25 Position	

	MCKS	N1	B	25	
PCB Connectors (Straight and Right Angle)	MCKS Series	N1: Electroless Nickel C2: Yellow Chromate	B: No Hardware P: Jackpost	25 Position	

Example PNs: **Cabled Connector:** MCKS-N1-B-25P8F1-18.0
PCB Connector: MCKS-N1-B-25PRT1

J4 Fiber Optic	J5 GPS Antenna	J6 Aux DC Power	J7 High Speed (Copper)	J8 High Density RF	J9 Low Loss RF	J10 AC Power
All	All	All	All	Radar/ SAR, EW, SIGINT, Communications	Radar/ SAR, EW, SIGINT, Communications	12-Fiber:2355002-1
MIL-DTL-38999/ Series III	MIL-PRF-39012	MIL-DTL-38999/ Series III	VITA 76	MIL-DTL-38999/ Series III	MIL-DTL-38999/ Series III	MIL-DTL-38999/ Series III
19	TNC	21	17	25	25	17
Receptacle with Socket Inserts for Fiber Optics	Receptacle	Receptacle with Pin Inserts	Receptacle with Pin Inserts	Receptacle with Socket Inserts	Receptacle with Socket Inserts	Receptacle with Pin Inserts
Plug with Pin Inserts for Fiber Optics	Plug	Plug with Socket Inserts	Plug with Socket Inserts	Plug with Pin Inserts	Plug with Pin Inserts	Plug with Socket Inserts
N	—	A	N	N	N	N
19-11	—	21-11	—	25-19	25-8	17-6
D38999/20*F11BN	See p 14	D38999/20*J7PA	Not supplied by TE	D38999/20*J19BN	D38999/20*J8BN	D38999/20*E6PN
See p 15		Included	Included	Contact TE	Contact TE	Included
D38999/26*F11AN	See p 14	D38999/26*J7SA	Not supplied by TE	D38999/26*J19AN	D38999/26*J8AN	D38999/26*E6SN
See p 15		Included	Included	Contact TE	Contact TE	Included

J4 Fiber Optic	J5 GPS Antenna	J7 High Speed (Copper)	J8 High Density RF	J9 Low Loss Rf
All	All	All	Radar/ SAR, EW, SIGINT, Communications	Radar/ SAR, EW, SIGINT, Communications
MIL-DTL-38999/ Series III	MIL-PRF-39012	VITA 76	MIL-DTL-38999/ Series III	MIL-DTL-38999/ Series III
13	TNC	17	21	21
Receptacle with Socket Inserts for Fiber Optics	Receptacle	Receptacle with Pin Inserts	Receptacle with Socket Inserts	Receptacle with Socket Inserts
Plug with Pin Inserts for Fiber Optics	Plug	Plug with Socket Inserts	Plug with Pin Inserts	Plug with Pin Inserts
N	—	N	N	N
13-4	—	—	21-11	21-75
D38999/20*C4BN	See p 14	Not supplied by TE	D38999/20*G11SN	D38999/20*G75BN
See p 15		Included	Contact TE	Contact TE
D38999/26*C4AN	See p 14	Not supplied by TE	D38999/26*G11PN	D38999/26*G75AN
See p 15		Included	Contact TE	Contact TE

Note 1: For 38999 connectors, the *calls for the class of the connector, which is the material and plating of the connector housing. Options: W = aluminum with olive drab cadmium plating, F = aluminum with electroless nickel plating, T = aluminum with Nickel PTFE plating, Z = aluminum with black zinc nickel plating, M = composite with electroless nickel plating, J = composite with olive drab cadmium plating, G = aluminum with electroless nickel plating (space grade, so connectors outgassed per MIL-DTL-38999), K = stainless steel, passivated, S = stainless steel with electrodeposited nickel plating (K or S not recommended for J8 or J9 connectors)

Note 2: Connectors with the letter A or B in the 2nd to last position of the part # and near the end of the part # do not come with contacts. The contacts are ordered separately, and the contacts are called out in the SOSA™ Technical Standard

Note 3: D38999 part #s with contacts included come with a full complement of SAE-AS39029 mil spec qualified crimp contacts

P	8F1			18.0
P: Pin S: Socket	8: 28 AWG	F: 7 Strand per MIL-W-22759/11	1: All White Wire 9: Solid Color Repeating per MIL-DTL-83513	Lead Length (18 in Minimum)

S	RT1	
P: Pin S: Socket	RT: Right Angle Termination ST: Straight Termination	1: .100" leads 1A: .140" leads 1B: .172" leads

TNC Connectors (MIL-PRF-39012)

The TE Connectivity TNC RF connector family, with 7/16-28 threaded couplings, provides low noise levels and optimum stability, and can withstand the shock and vibration often present in harsh environments. Available in 50 ohm versions, these connectors feature cable plugs and jacks. These connectors accept a wide range of coaxial cables and are intermateable with industry standard connectors designed to MIL-PRF-39012 specifications.

*See www.te.com for the full line of TNC Connectors

HIGH PERFORMANCE
• Provides excellent performance at frequencies up to 11 GHz

RUGGED
• Weatherproof versions available
• Plugs available for high temperature cable

VERSATILE
• Commercial Off-the-Shelf equivalent parts available

		TE Part No.	Reference Part No.	Military PN M39012/26	Termination Style	Body Plating	Cable
	Plugs MIL-PRF-39012/26	225345-6	—	B0006	Crimp	Silver	RG-142, 142A, 142B, 400
		1057635-1	3101-7985-00	—	Solder	Passivate/Gold	405 (.086 Dia Semirigid or Flex)
		1057631-1	3101-7941-00	—	Solder	Passivate/Gold	402 (.141 Dia Semirigid or Flex)
		TE Part No.	Reference Part No.	Military PN M39012/26	Termination Style	Body Plating	Cable
	Bulkhead Jacks MIL-PRF-39012/27	1057679-1	3104-7985-00	—	Solder	Passivate/Gold	405 (.086 Dia Semirigid or Flex)
		1057676-1	3104-7941-00	—	Solder	Passivate/Gold	402 (.141 Dia Semirigid or Flex)
		TE Part No.	Reference Part No.	Military PN M39012/26	Termination Style	Body Plating	Cable
	Panel Jack MIL-PRF-39012/29	1057699-1	3106-7985-00	—	Solder	Passivate/Gold	405 (.086 Dia Semirigid or Flex)
		1057697-1	3106-7941-00	—	Solder	Passivate/Gold	402 (.141 Dia Semirigid or Flex)

Multi-Mode Optical Termini
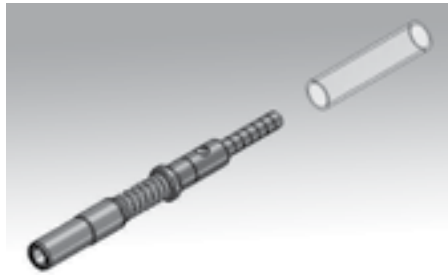
TE optical termini are designed to work with MIL-C-38999 SIII interconnects, and designed to MIL-T-29504/5 STYLE.

They use the most recent developments in precision ceramic ferrules and lightweight MIL-C-38999 Series III connector shell materials, designed to ensure the optical performance meets the requirements of high reliability optical systems. Compact spring loaded, precision optical contacts are individually insertable / removable for ease of assembly. Extensive testing has confirmed excellent performance under the most demanding environmental conditions.

SINGLE-FIBER CERAMIC FERRULES
• MIL-PRF-29504/4 pin and /5 socket

MULTIFIBER ARRAYS
• MT multifiber ferrules

SINGLE FIBER CERAMIC FERRULES

				MIL-PRF for Reference Only
	TE Part Number	**Bore Size**	**Style**	**TICC Number**
Socket Contacts	457462-126-200	0.126 +0.001/-0	1	4311 4238
	457462-127-200	0.127 +0.001/-0	1	4046
	457462-232-150	0.232 +0.004/-0	1	N/A
	457462-283-250	0.283 +0.004/-0	1	N/A
Pin Contacts	457463-126-250	0.126 +0.001/-0	1	4302 4209
	457463-127-200	0.127 +0.001/-0	1	4040
	457463-232-200	0.232 +0.004/-0	1	N/A
	457463-283-250	0.283 +0.004/-0	1	N/A

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We make it easy to connect with our experts and are ready to provide all the support you need.
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QUALITY STARTS WITH THE RIGHT APPLICATION TOOLING

Creating a quality crimp connection is essential to delivering high performance and reliability in extreme environments. From low to high volume wire processing, TE has you covered with a full range of application tooling and a global field service team.

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