Product snapshot

OpenVPX™ compliant solutions

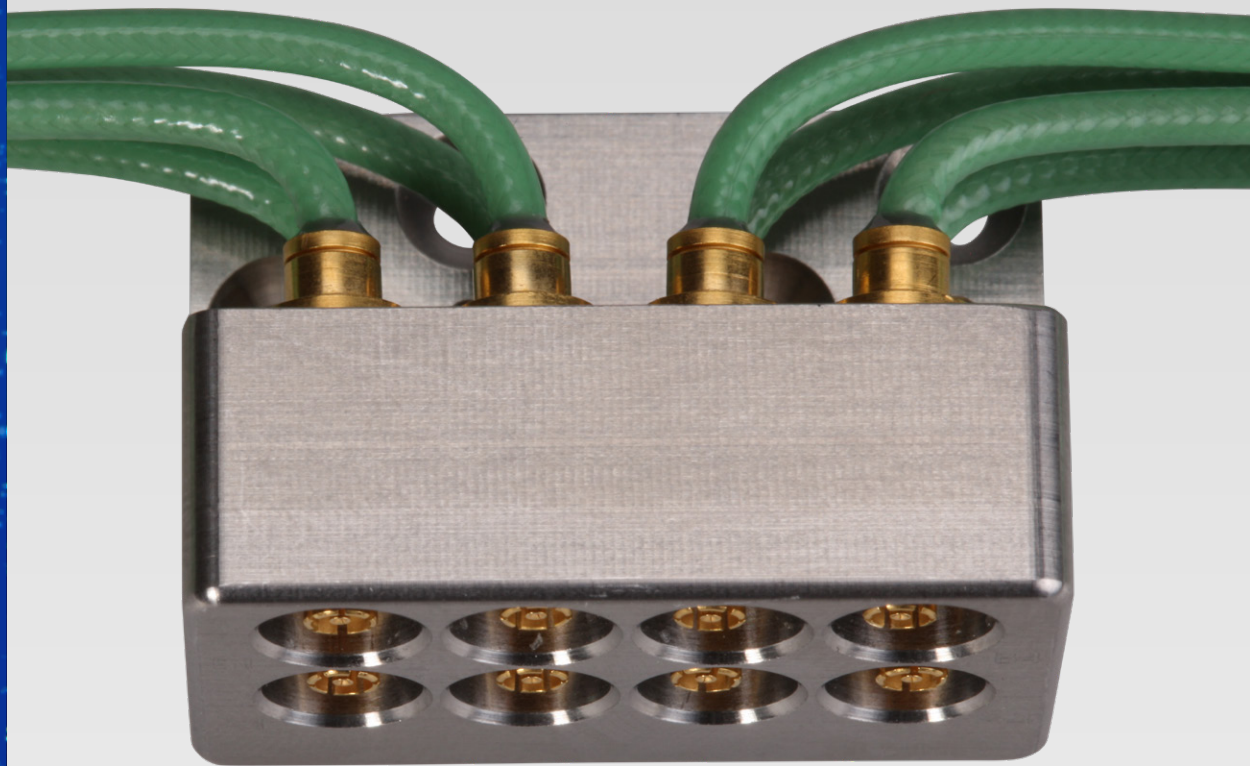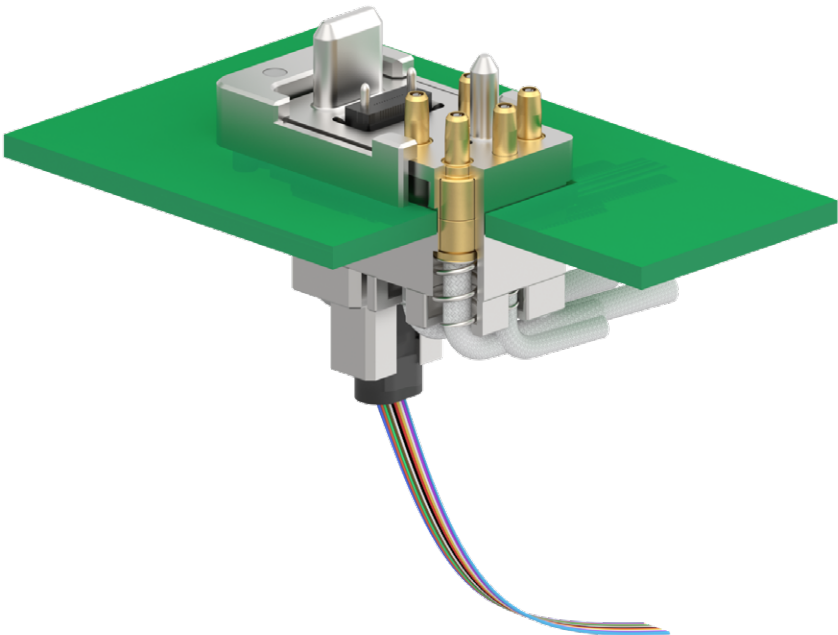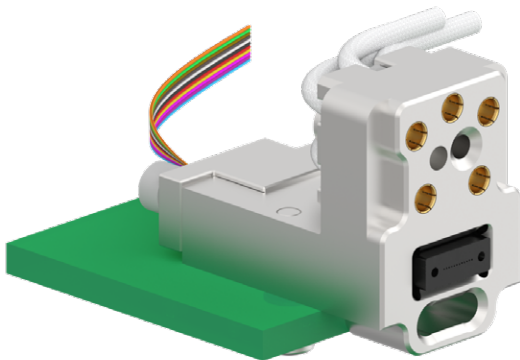Edition 2025

HUBER+SUHNER

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Portfolio Overview

What is OpenVPX™?

The OpenVPX suite of standards identifies a common framework for the design of firmware, software, and hardware for next-generation military embedded systems. OpenVPX is one of many open-source design standards that have been established through collaboration among government, industry, and academia across the Aerospace & Defense (A&D) industry. The purpose of these open-source architecture consortia is to identify, standardize, and proactively maintain a suite of technologies that enable seamless interoperability and significantly improved time-to-market for system-level prototyping, fleet-wide technology upgrades, mission reconfiguration, and MRO activities by empowering multiple sourcing initiatives and improving platform lifecycle management and useful life. At the hardware connectivity level, OpenVPX identifies standard design options for power and data (analog and digital) architecture for embedded systems from PCB to chassis.

Platform commonality and interoperability will boost the effectiveness of next generation A&D systems by ensuring continuous mission readiness. HUBER+SUHNER is a proud member of The Open Group's SOSA Consortium and VITA Standards Organization, and has supported the global Aerospace and Defense industry with high performance and high reliability connectivity solutions for over half a century. We firmly believe that standardization and innovation can coexist, providing system engineers with tradeoff-free connectivity solutions that enable true size, weight, and power (SWaP) optimization for next-generation mission capabilities.

Features and Benefits

- Complete end-to-end OpenVPX-compliant RF and Fiber Optic connectivity supporting SMPM, SMPS, and NanoRF interfaces delivered as drop-in assemblies from a single source

- The largest portfolio of cable and connector options for PCB and chassis connectivity ensures application-tailored interconnect solutions

- HUBER+SUHNER's proprietary solderless MINIBEND® RF cable termination technology enables the industry's lowest profile 90° bends immediately behind the connector junction and eliminates failure-prone solder joints from the cable assembly, saving valuable space while improving reliability and eliminating installation-related failures

- Lowest loss .047- and .086-size cable options available on the market

- All assemblies manufactured in accordance with IPC/WHMA-A-620 Class 3

- Dedicated express production line provides made-to-order assemblies in as little as 4 weeks

Technology Spotlight:
The MINIBEND® family of solderless cable assemblies

Over the last 30 years, HUBER+SUHNER has revolutionized solderless connector termination technology in flexible cable assembly applications. This capability is the foundation behind our MINIBEND® portfolio, the industry's lowest profile flexible coaxial cable assemblies. Designed as a drop-in replacement for traditional semi-rigid coaxial connections (such as .047, .086, and .141), these assemblies deliver superior reliability and ease of installation as an off-the-shelf MIL-PRF-39012 qualified solution.

MINIBEND cable assemblies are highly engineered to provide a tradeoff-free alternative to conventional flexible and pre-formed semi-rigid assemblies:

- **Shield braid** – The cable options supporting the MINIBEND family of products are designed with a stainless steel shield braid to replicate the tensile strength of solder joints without the need for strain relief.
- **Connector design** - MINIBEND connectors are designed with a high-reliability clamped cable junction, which allows the RF cable to be bent immediately behind the rear of the connector body. This feature enables the industry's tightest 90° routing, enabling extreme density which is only otherwise achievable with expensive and fragile pre-formed semi-rigid assemblies.
- **Epoxy system** - HUBER+SUHNER's proprietary epoxy system ruggedizes the clamped shield braid termination, increasing the tensile strength of the cable junction by 70%. This system also provides enough torsional robustness to permit multiple 90° rotations about the center line axis, which is not possible with a soldered connector junction and is one of the leading causes of soldered flexible cable failures during installation.

HUBER+SUHNER's portfolio of OpenVPX-compliant connectivity solutions is designed around the following MINIBEND cable types (for performance details, see Cable Offerings on page 9):

- **MINIBEND L** – Low loss .086-size cable option, compatible with SMPM options
- **MICROBEND** – Standard .047-size cable option with industry-leading 0.060 in. (1.5mm) bend radius
- **MICROBEND L** – Low loss .047-size cable option
- **NANOBEND** – Standard .047-size cable option designed for .047 NanoRF contacts

Additionally featured as a cable option from the HUBER+SUHNER catalog for OpenVPX connectivity:

- **MULTIFLEX_53-02** - best combination of bend radius and loss performance available at .047 cable size
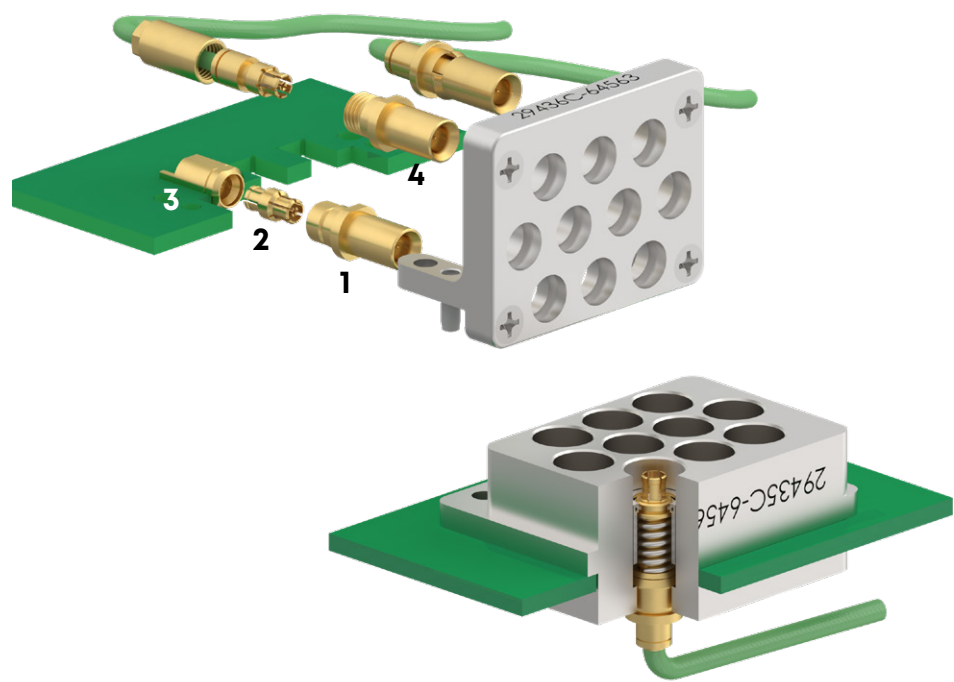
For additional information on the MINIBEND portfolio, please visit our website: MINIBEND

MINIBEND assembly (left) shown bent 90° at minimum bend radius alongside a competitor flexible cable assembly

Product Offerings

VITA 67.3 – SMPM

VITA 65 Reference	Module Description	Module P/N	SMPM Contact Series[1]	SOSA Aligned
6.4.5.6.3	10-pos SMPM Backplane	29435C-64563_Al	29981SV2CR3	Legacy
	10-pos SMPM Plug-In Card	29436C-64563_Al	29972SVCR3	Legacy
6.4.5.6.4	14-pos SMPM Backplane	29435C-64564_Al	29981SV2CR3	x
	14-pos SMPM Plug-In Card	29436C-64564_Al	29972SVCR3	x

[1] Reference the Cable Connector Compatibility Matrix on page 9 for available cable types

| Part Description	Part Number	Reference
VITA 67.3 SMPM Male to SMPM Male Adaptor	29989-972P-972P	1
SMPM Female-to-Female Bullet (.210")	29981-A2F11	2
SMPM Male Edge Launch PCB Connector	29972CB1-4-004	3
VITA 67.3 SMPM Male to SMPM-T Male Adaptor	29989-972P-976P	4

VITA 67.3 – SMPS
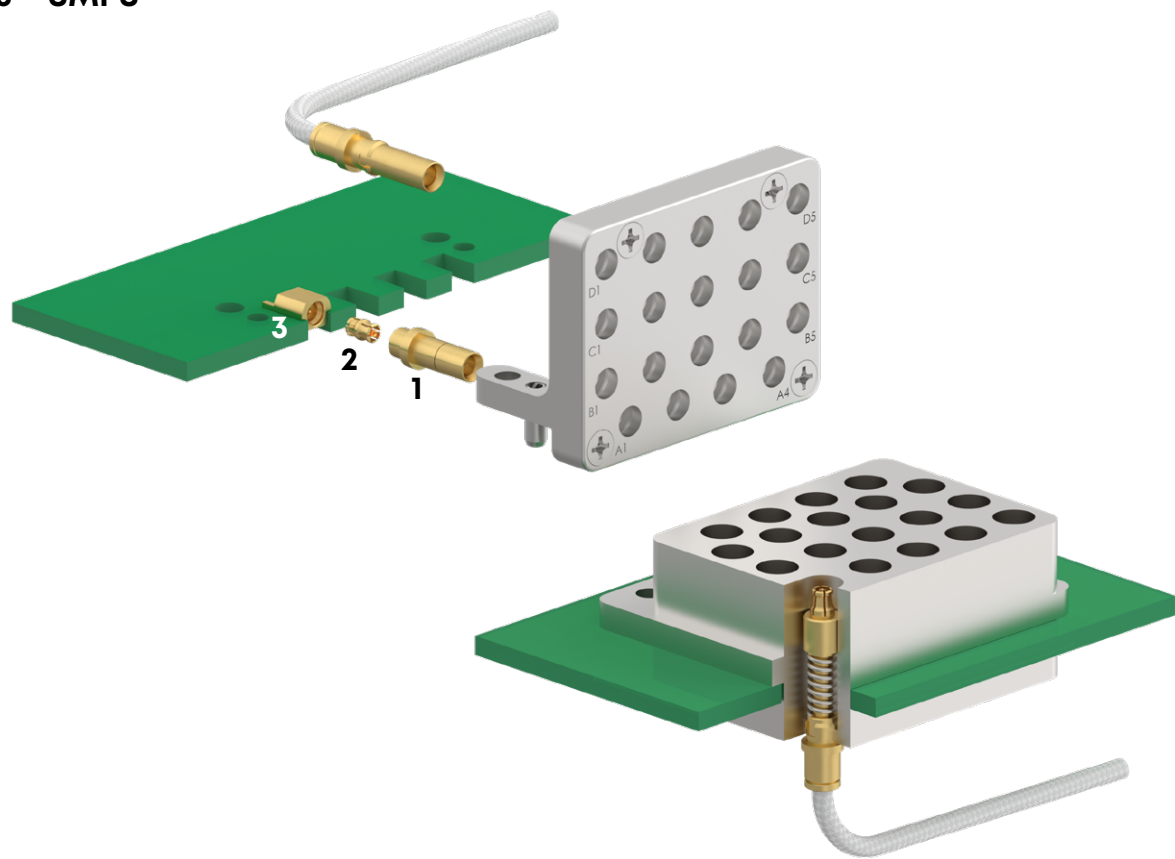
VITA 65 Reference	Module Description	Module P/N	SMPS Contact Series[1]	SOSA Aligned
6.4.5.6.7	19-pos SMPS Backplane	29435C-64567_Al	29171SVCR3	x
	19-pos SMPS Plug-In Card	Coming Soon		x

[1] Reference the Cable Connector Compatibility Matrix on page 9 for available cable types

Part Description	Part Number	Reference
VITA 67.3 SMPS Male to SMPM Male Adaptor	Coming Soon	1
SMPS Female-to-Female Bullet (.098")	Coming Soon	2
SMPS Male Edge Launch PCB Connector	Coming Soon	3

VITA 67.3 – NanoRF
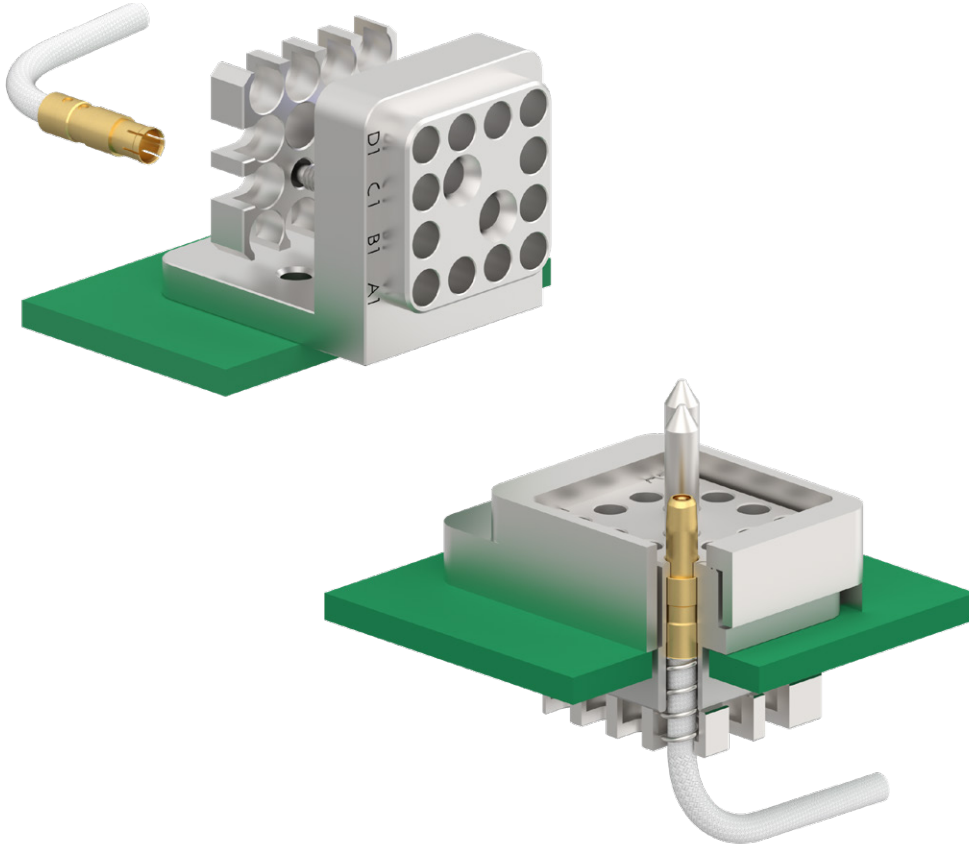
VITA 65 Reference	Module Description	Module P/N	NanoRF Contact Series[2]	MT Assembly[1]	SOSA Aligned
6.4.5.7.2	9-pos NanoRF Backplane	29446P-64572_AI	29447P(2)		x
	9-pos NanoRF Plug-In Card	29446J-64572_AI	29447J(2)		x
6.4.5.7.3	5-pos NanoRF, 1-pos MT Backplane	29446P-64573_AI	29447P(2)	Contact H+S	x
	5-pos NanoRF, 1-pos MT Plug-In Card	29446J-64573_AI	29447J(2)	Contact H+S	x
6.4.5.7.4	10-pos NanoRF, 1-pos MT Backplane	29446P-64574_AI	29447P(2)	Contact H+S	x
	10-pos NanoRF, 1-pos MT Plug-In Card	29446J-64574_AI	29447J(2)	Contact H+S	x
N/A	12-pos NanoRF Backplane	29446P-12_AI	29447P(2)		
	12-pos NanoRF Plug-In Card	29446J-12_AI	29447J(2)		
N/A	18-pos NanoRF Backplane	29446P-18_AI	29447P(2)		
	18-pos NanoRF Plug-In Card	29446J-18_AI	29447J(2)		

[1] HUBER+SUHNER can support MT ferrules on single mode and multimode fiber types, contact H+S for full product availability

[2] The final digit '2' is required for NANOBEND assemblies only. Reference the Cable Connector Compatibility Matrix on page 9 for available cable types

MIL-DTL-38999 Series III / IV Contacts

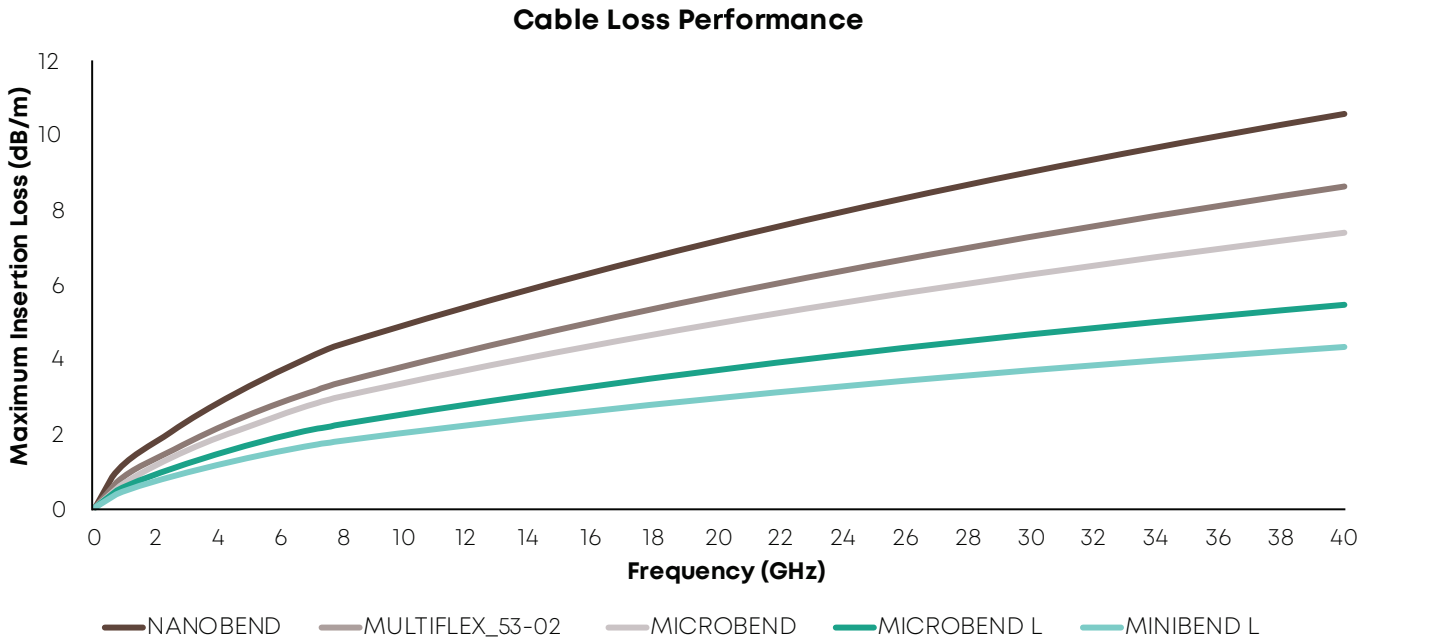| Contact Size[1]	Coax Interface	Pin	Socket	SOSA Aligned
8	BMA	14_BMA-50	24_BMA-N50	
			29482C8R	
8	BMB	Coming Soon	Coming Soon	x
12	SMPM	29981M12	29972AS12	x
16	SMPS	29171M16CR	29174M16CR	

[1] Reference the Cable Connector Compatibility Matrix on page 9 for available cable types

Cable Offerings

Cable Type[1]	Outer Diam. in. (mm)	Bend Radius in. (mm)	Nominal Insertion Loss dB/ft (dB/m)			
			2 GHz	6 GHz	18 Ghz	40 Ghz
NANOBEND	0.06 (1.62)	0.20 (5.1)	0.64 (2.11)	1.13 (3.71)	2.01 (6.58)	3.07 (10.7)
MULTIFLEX_53-02	0.07 (1.74)	0.06 (1.5)	0.50 (1.60)	0.88 (2.90)	1.60 (5.20)	2.50 (8.20)
MICROBEND	0.08 (1.96)	0.06 (1.5)	0.45 (1.47)	0.79 (2.60)	1.42 (4.66)	2.20 (7.22)
MICROBEND L	0.08 (1.96)	0.20 (5.1)	0.35 (1.12)	0.60 (1.96)	1.05 (3.44)	1.59 (5.21)
MINIBEND L	0.10 (2.49)	0.20 (5.1)	0.27 (0.88)	0.47 (1.53)	0.82 (2.70)	1.25 (4.10)

[1] For further details of the cable types listed above, please consult the associated HUBER+SUHNER datasheet.

Cable Loss Performance

Legend: NANOBEND, MULTIFLEX_53-02, MICROBEND, MICROBEND L, MINIBEND L

[RF Assembly Calculator - HUBER+SUHNER](#)

Cable Connector Compatibility Matrix

Interface	Type	Part No.	MIL Ref.*	NANOBEND	MF53-02	MICROBEND	MICROBEND L	MINIBEND L
SMP	Female	29573CR		X		X	X	X
	Female	29573			X			
	Female Right Angle	29578				X		X
SMPM	VITA 67.3 PIC	29972SVCR3		X		X		X
	VITA 67.3 BP	29981SV2CR3		X	X	X	X	X
	VITA 67.1/67.2 PIC	29981SV			X			
	VITA 67.1/67.2 PIC	29981SVCR		X		X		
	Female (4-Finger)	29971CR			X	X		
	Female (6-Finger)	29981CR		X		X		X
	Female (6-Finger)	29981			X			
	Female Right Angle	29973		X	X	X	X	
	D38999 Pin Size 12	29981M12	M39029/58	X		X		X
	D38999 Socket	29972AS12	M39029/56	X			X	X
SMPM-T	Female	29971TCR				X	X	X
SMPS	VITA 67.3 PIC		Coming Soon					
	VITA 67.3 BP	29171SVCR3		X		X	X	
	D38999 Pin Size 16	29171M16CR	M39029/58	X				
	D38999 Socket Size 16	29174M16CR	M39029/56	X				
NanoRF	VITA 67.3 BP (.047)	29447P			X			
	VITA 67.3 BP (.047)	29447P2		X				
	VITA 67.3 BP (.086)	29447P					X	
	VITA 67.3 PIC	29447J			X			
	VITA 67.3 PIC	29447J2		X				
SMP3	Female	29171CR		X				
SMP3-T	Female	21SMP3T		X				
BMA	D38999 Socket Size 8	29482C8R	M39029/60					X
SMA	Male	29094CR		X		X	X	X
	Male	11SMA			X			
	Female	29092CR		X		X		X
	Female	21SMA			X			
SK	Male	29094KCR		X		X	X	X
	Male	11SK			X			
	Female	29092KCR		X		X		X
	Female	21SK			X			

A wide variety of additional "Connector B" options are available for OpenVPX-compliant interconnects. Additional cable types may be available for a specific connector configuration, please contact your local HUBER+SUHNER representative for additional options.

*MIL references applicable to contact geometry compliance only

Backplane Minimum Assembly Clearance

Module	Cable	Clearance Dimension in. (mm)	Reference
VITA 67.3 SMPM Backplane	MINIBEND L	0.764 (19.4)	A
	MICROBEND L	0.674 (17.1)	A
	NANOBEND	0.594 (15.1)	A
	MICROBEND	0.455 (11.6)	A
	MULTIFLEX_53-02	0.595 (15.1)	A
VITA 67.3 SMPS Backplane	MICROBEND	0.497 (12.6)	A
	MICROBEND L	0.611 (15.5)	A
	NANOBEND	0.597 (15.2)	A
VITA 67.3 NanoRF Backplane	MICROBEND L	0.534 (13.6)	B
	MULTIFLEX_53-02	0.550 (14.0)	B
	NANOBEND	0.518 (13.2)	B

Dimensions are referenced from mounting surface of PCB to the top of the 90° cable bend at minimum bend radius. Please contact your local HUBER+SUHNER representative for detailed design support resources.
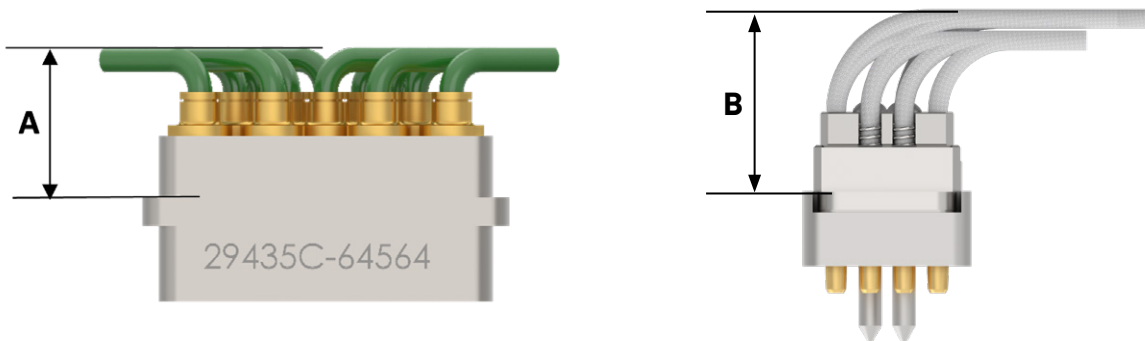
Assembly Part Number Builder

| Cable | – | Connector A | – | Connector B | – | Length | Unit |

32061SE = NANOBEND
MF5302 = MULTIFLEX_53-02
32041E = MICROBEND
32085E = MICROBEND L
32081E = MINIBEND
32024E = MINIBEND L

See Cable Connector Compatibility Matrix on page 9, **Part Number** column[1]

No Unit = Inches (default)
MM = Millimeters
M = Meters

Example

Cable:	MICROBEND L
Connector A:	SMPM VITA 67.3 Backplane
Connector B:	SMP Female
Length:	12
Unit:	Inches
Result:	32085E-29981SV2CR3-29573CR-12

[1] If there is a connector you are looking for that is not in the matrix, please reach out as this option may be available.

Contact HUBER+SUHNER for full part number and ordering information.

Assemblies from the VITA 67.3 portfolio are manufactured in accordance with IPC/WHMA-A-620 Class 3 by default.

Assemblies requiring special customizations such as phase or length matching can be accommodated.

Additional Products – VITA 67.1 and 67.2
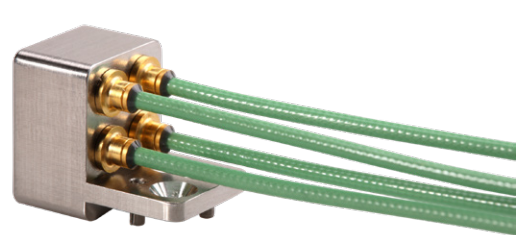
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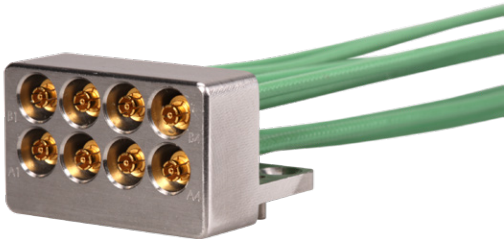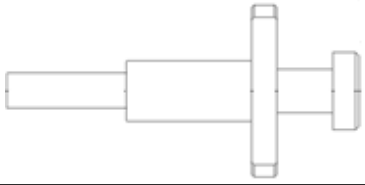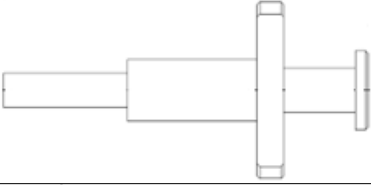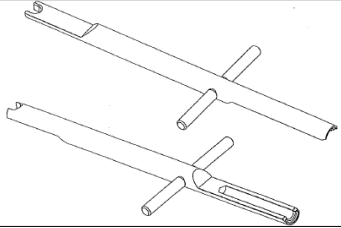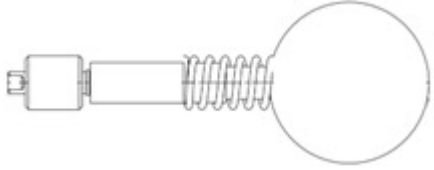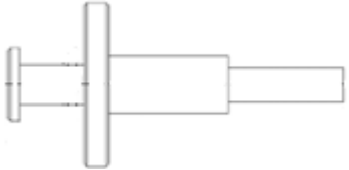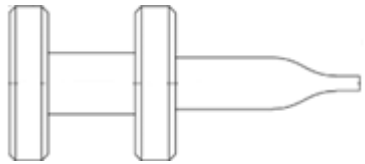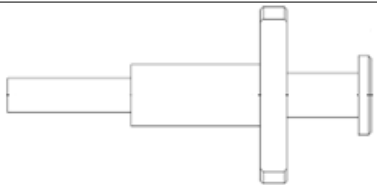
VITA 67.2

VITA 67 Reference	Module Description	Module P/N	SMPM Connector Series[1]
67.1	4-pos SMPM Plug-In Card	29981-DCM4	29981SV 29981SVCR
	4-pos SMPM to SMPM Backplane	29989B-MBM4	29971CR
	4-pos SMPM to SMPM-T Backplane	29989-MBM4	29971TCR
		29989-MBM4-86	
67.2	8-pos SMPM Plug-In Card	29981-DCM8	29981SV 29981SVCR
	8-pos SMPM to SMPM Backplane	29989B-MBM8	29971CR
	8-pos SMPM to SMPM-T Backplane	29989-MBM8	29971TCR
		29989-MBM8-86	
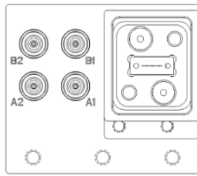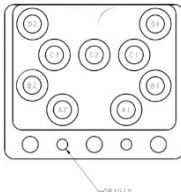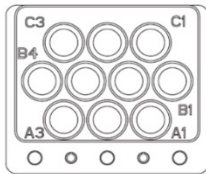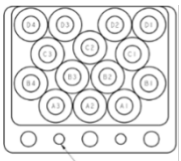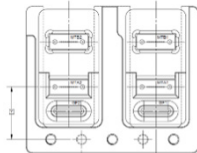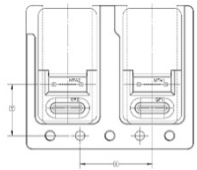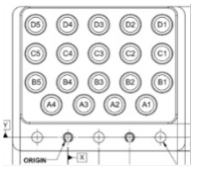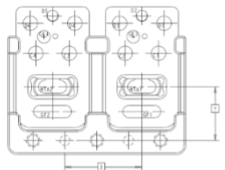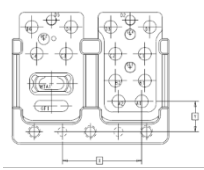
[1] Reference the Cable Connector Compatibility Matrix for available cable types

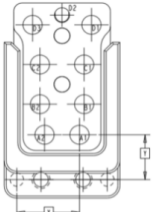Reference DOC-0000889067 for detailed information on VITA 67.1 and 67.2 products and accessories
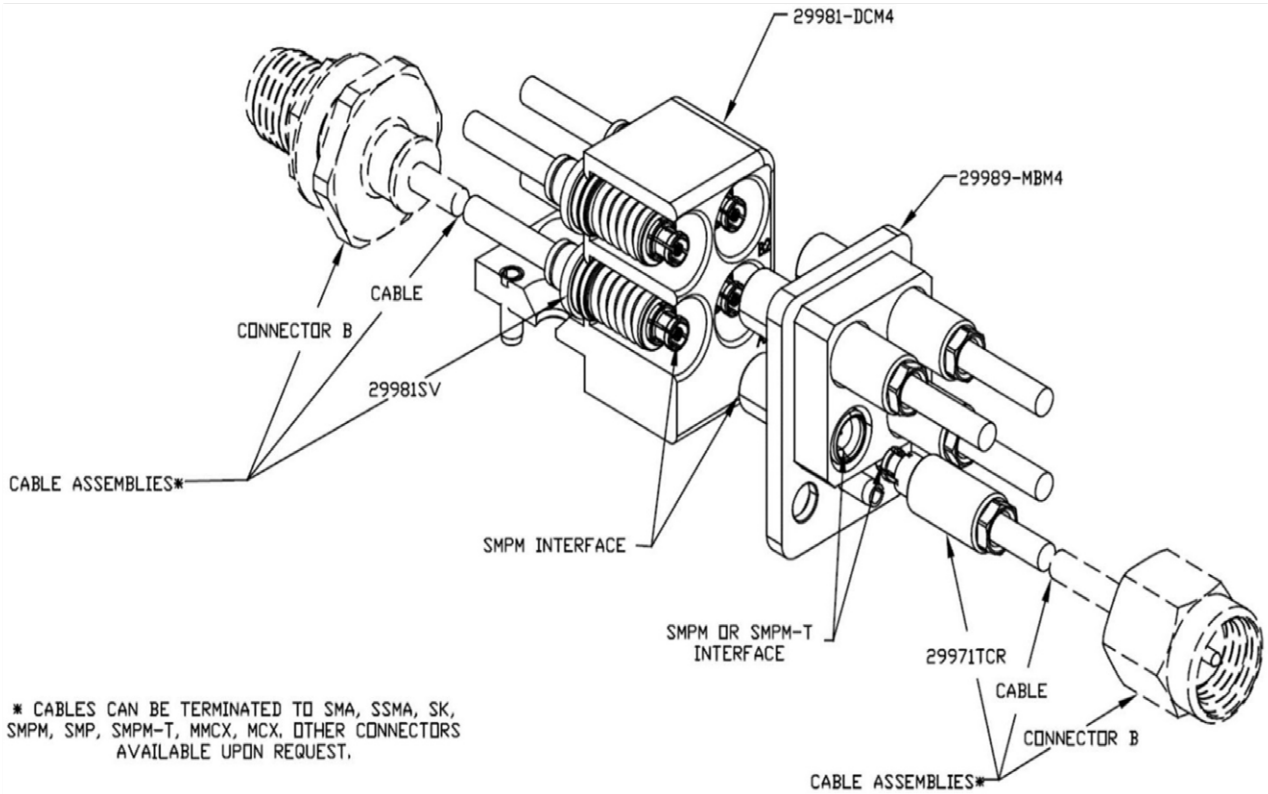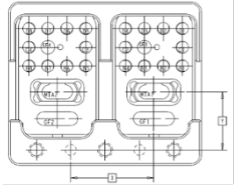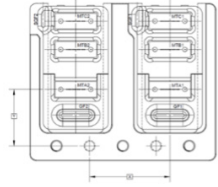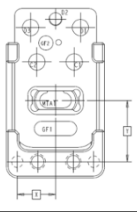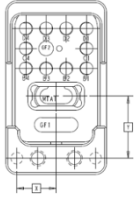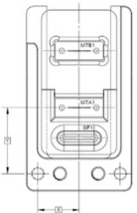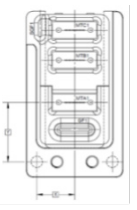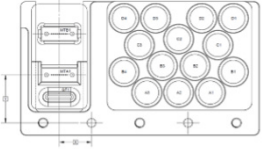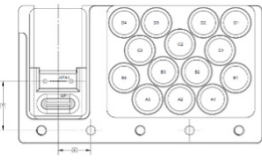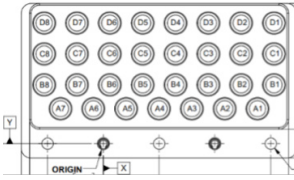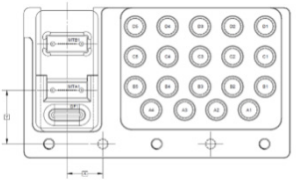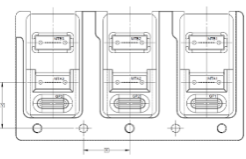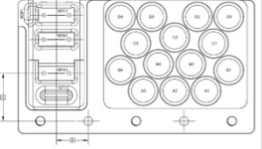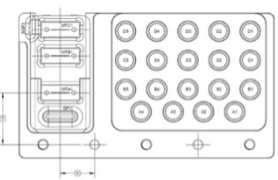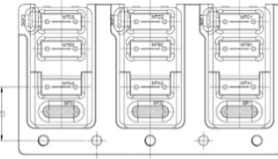
VITA Tools

Description	Part Number	Reference Image
SMPM		
SMPM Female VITA 67.3 Contact Removal Tool	AT-2377-DCM3	
SMPM Male VITA 67.3 Contact Removal Tool	AT-2377-DCM7	
SMPM VITA 67.1/2/3 Insertion tool	AT-2377-DCM2	
SMPM Female VITA 67.3 Installation/Removal Tool	AT-2377-DCM8	
SMPM Female VITA 67.1/2 Removal Tool	AT-2377-DCM1	
SMPS		
SMPS Female VITA 67.3 Bullet Insertion/Removal Tool	AT-2377-DCM5	
SMPS VITA 67.3 Contact Removal Tool	AT-2377-DCM4	

REFERENCE – VITA 65.1 Connector Modules

Reference	Number of MTs	Number of Coax Contacts	Coax Interface	Arrangement	SOSA Aligned
6.4.5.6 Connector Modules with Aperture Pattern H (67.3C Footprints)					
6.4.5.6.1	1	4	SMPM		Legacy
6.4.5.6.2		9	SMPM		Legacy
6.4.5.6.3		10	SMPM		Legacy
6.4.5.6.4		14	SMPM		X
6.4.5.6.5	4				
6.4.5.6.6	2				
6.4.5.6.7		19	SMPS		X
6.4.5.6.8	2	10	50 Ω NanoRF		X
6.4.5.6.9	1	14	50 Ω NanoRF		X

Reference	Number of MTs	Number of Coax Contacts	Coax Interface	Arrangement	SOSA Aligned
6.4.5.6.10	2	20	50 Ω NanoRF		X
6.4.5.6.11	6				X
6.4.5.7 Connector Modules with Aperture Pattern J (VITA 67.3D Footprint)					
6.4.5.7.1	1				X
6.4.5.7.2		9	50 Ω NanoRF		X
6.4.5.7.3	1	5	50 Ω NanoRF		X
6.4.5.7.4	1	10	50 Ω NanoRF		X
6.4.5.7.5	2				
6.4.5.7.6	3				X

Reference	Number of MTs	Number of Coax Contacts	Coax Interface	Arrangement	SOSA Aligned
6.4.5.8 Connector Modules with Aperture Pattern K (VITA 67.3E Footprint)					
6.4.5.8.1		12	SMPM		
6.4.5.8.2	2	14	SMPM		
6.4.5.8.3	1	14	SMPM		
6.4.5.8.4		31	SMPS		
6.4.5.8.5	2	19	SMPS		
6.4.5.8.6	6				
6.4.5.8.7	3	14	SMPM		
6.4.5.8.8	3	19	SMPS		
6.4.5.8.9	9				

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