



EDGE CARD SYSTEMS



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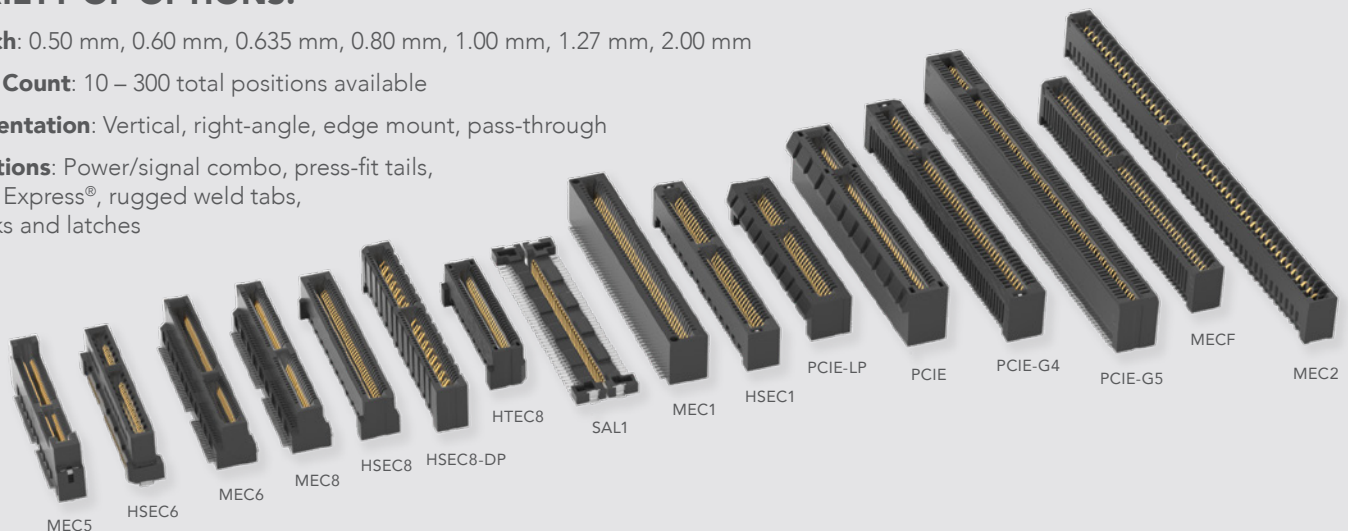
SPEEDS TO 56 Gbps • EDGE RATE® CONTACTS • VARIETY OF OPTIONS

HSEC8-DP
Twelve total
differential pairs shown

MEC5-RA
Right-angle shown

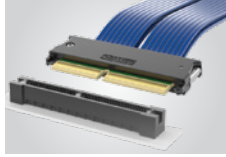
VARIETY OF OPTIONS:

- **Pitch:** 0.50 mm, 0.60 mm, 0.635 mm, 0.80 mm, 1.00 mm, 1.27 mm, 2.00 mm
- **Pin Count:** 10 – 300 total positions available
- **Orientation:** Vertical, right-angle, edge mount, pass-through
- **Options:** Power/signal combo, press-fit tails, PCI Express®, rugged weld tabs, locks and latches



0.60 mm PITCH SOCKETS

- Differential pair Edge Rate® contacts
- Compliant to SFF-TA-1002: x4 (1C), x8 (2C), x16 (4C and 4C+)
- Mates with .062" (1.60 mm) thick cards
- PCI Express® 4.0 and 5.0 capable; and Gen-Z™ compliant



0.60 mm pitch mating high-speed cable assembly in development

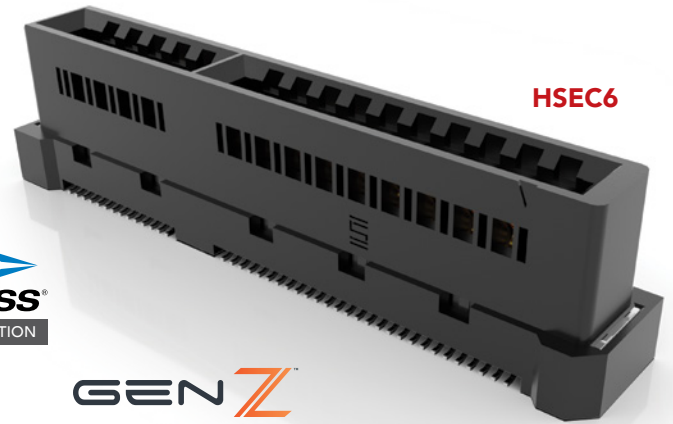
EDGE RATE
CONTACT

PAM4
56
Gbps

PCI EXPRESS
4.0 & 5.0 SOLUTION

GEN Z

GENERATE™



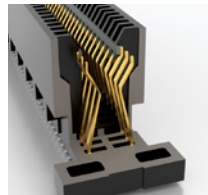
HSEC6

0.80 mm PITCH SOCKETS

- Up to 200 high-speed Edge Rate® contacts
- Mates with .062" (1.60 mm) and .093" (2.36 mm) thick cards
- Power/signal combo (HSEC8-PV)
- PCI Express® 3.0 and 4.0 capable; Gen 4.0 and 5.0 capable differential pair socket (HSEC8-DP)

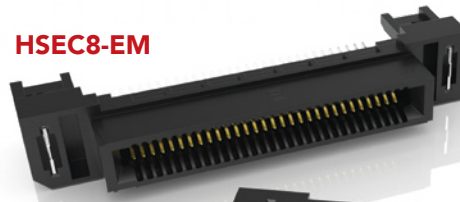
EDGE RATE
CONTACT

PAM4
56
Gbps

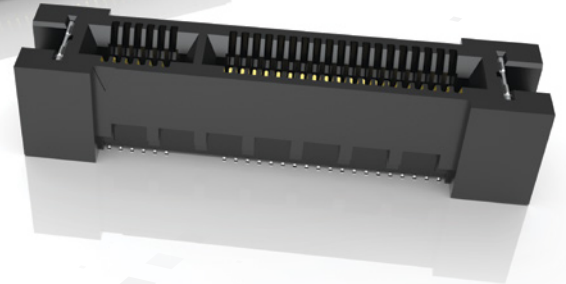


Rugged PCIe® 4.0 capable socket with tucked beam technology (HTEC8)

HSEC8-EM



HSEC8-DV



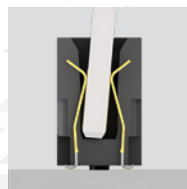
GENERATE™

1.00 mm PITCH SOCKETS

- Edge Rate® contact system for decreased crosstalk
- 20 – 140 positions
- Mates with .062" (1.60 mm) thick cards
- PCI Express® 3.0 and 4.0 capable; 5.0 capable differential pair socket in development (HSEC1-DP)

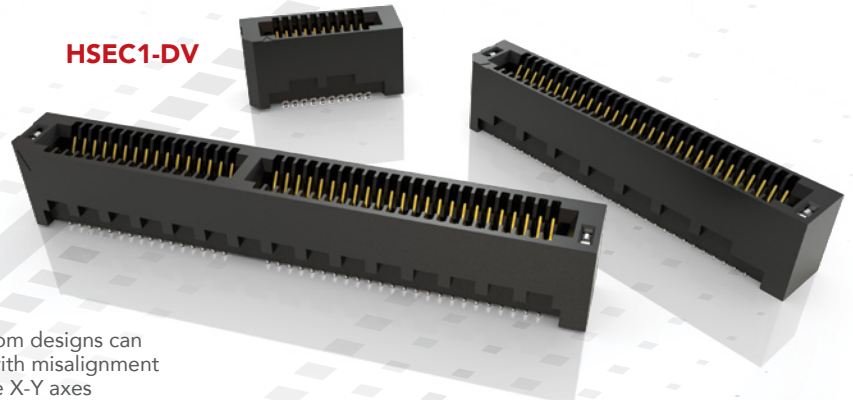
EDGE RATE
CONTACT

PAM4
56
Gbps



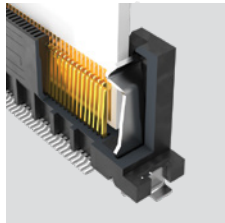
Custom designs can aid with misalignment in the X-Y axes

HSEC1-DV



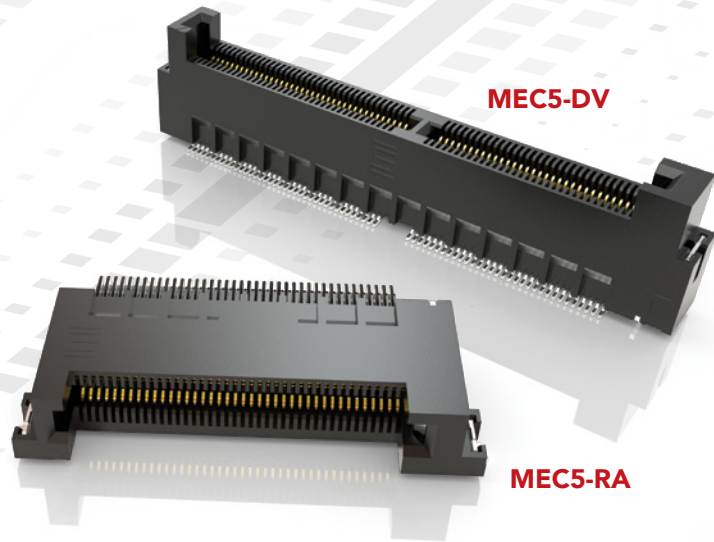
0.50 mm PITCH HIGH-SPEED, LOW-COST SOCKETS

- Justification beam enables use of standard PCB tolerance
- Up to 300 total I/Os
- PCIe® 4.0 capable
- Mates with .062" (1.60 mm) thick cards



Beam ensures card and body are flush

PAM4
56
Gbps

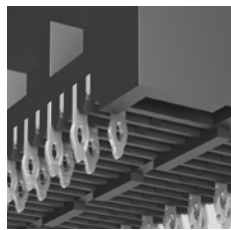


MEC5-DV

MEC5-RA

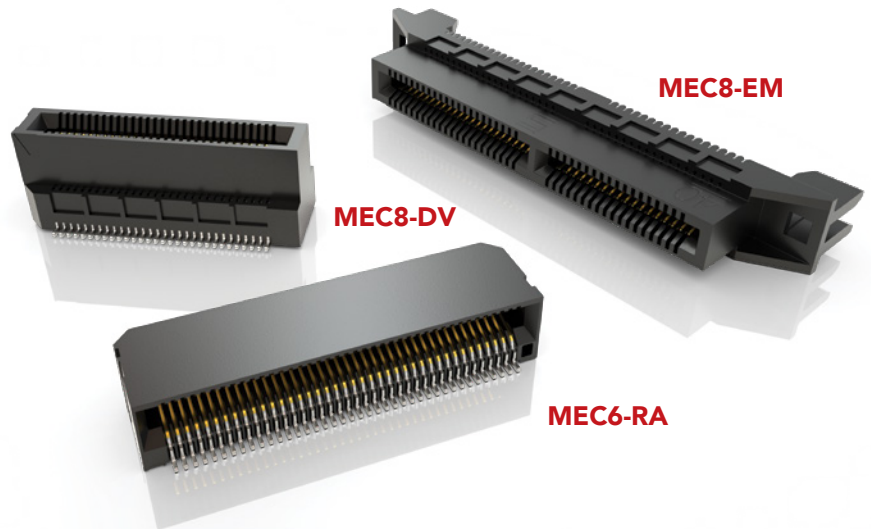
0.635 mm & 0.80 mm PITCH MICRO SOCKETS

- Up to 140 total I/Os
- Vertical and right-angle; edge mount (MEC8)
- Press-fit tails available (MEC8-VP)
- Mates with .062" (1.60 mm) thick cards



Staggered press-fit tails

25
Gbps



MEC8-EM

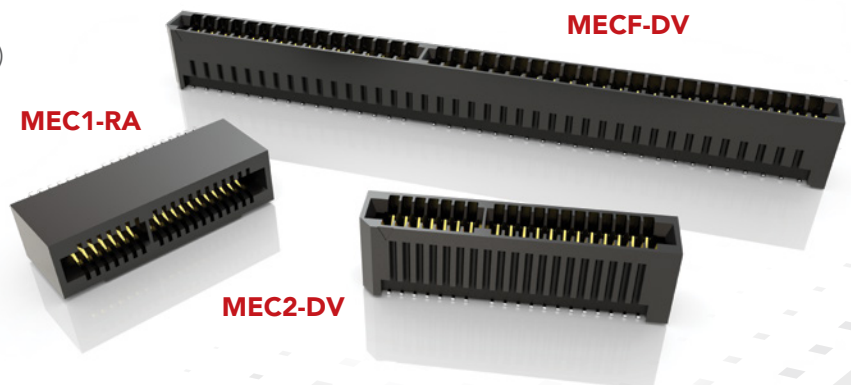
MEC8-DV

MEC6-RA

1.00 mm, 1.27 mm & 2.00 mm PITCH SOCKETS

- Up to 140 total I/Os
- Right-angle and edge mount available (MEC1)
- Optional weld tabs, alignment pins and polarization
- Mates with .062" (1.60 mm) and .093" (2.36 mm) thick cards

25
Gbps



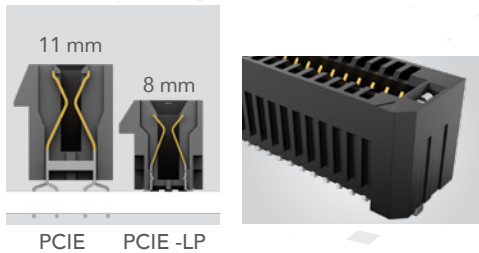
MEC1-RA

MEC2-DV

MECF-DV

PCI EXPRESS® 3.0 & 4.0 SOCKETS

- 1.00 mm pitch in x1, x4, x8 or x16
- PCIe® 3.0 (PCIe) and 4.0 (PCIe-LP) solutions
- Low profile version for space savings; through-hole tails in development
- PCI Express® Jumpers available
- Mates with .062" (1.60 mm) thick cards



PCIe® 4.0 slim body socket with Edge Rate® contacts (PCIe-G4)

PCI EXPRESS®
4.0 SOLUTION

PCIe-LP

PCI EXPRESS®
3.0 SOLUTION

PCIe

PCI EXPRESS® 5.0 SOCKETS

- Differential pair system
- 1.00 mm pitch
- Design-in today for future-proof data rates
- Mates with standard PCIe® expansion cards
- 1, 4, 8 and 16 PCI Express® 5.0 link options
- Currently in development

PCI EXPRESS®
5.0 SOLUTION

PCIe-G5

1.00 mm PITCH THROUGH BOARD SOCKETS

- 40 to 80 I/Os per pair
- Mounts in pairs on same or opposite sides for easy signal routing
- BeCu contacts with large deflection
- PCI Express® 3.0 solution
- Mounting flexibility for variable mating card thickness and pass-through applications

14
Gbps

SAL1

EDGE CARD REFERENCE GUIDE

	MEC5	HSEC6	MEC6	MEC8	HSEC8	HSEC8-DP	HTEC8
METROLOGY							
Pitch	0.50 mm	0.60 mm	0.635 mm	0.80 mm			
Total Pin Counts	60-300	56, 84, 140, 168	20-140		18-200	16, 24, 32, 40, 64, 112	40-200
Linear Density (circuits/mm)	3.30	2.35, 2.36, 2.46, 2.42	2.67	2.19	2.28		
Card Thickness	.062"		.062"		.062" & .093"		.062"
Orientations Available	V, RA	V	V, RA	V, RA, EM, PF	V, RA, EM, PT	V	
MECHANICAL PERFORMANCE							
Average Normal Force per Circuit (GRF)	50	96	100		60		38
Wipe (mm)	1.10	1.20	2.00	2.10	2.00	2.48	1.91
Mating/Unmating Force per Circuit (GRF)	30/25	46	50/30		40/20		TBD
ELECTRICAL PERFORMANCE (LOW FREQUENCY)							
Current Carrying Capacity (Amps)	1.5 (2 pins)	0.8 (12 pins)	2.4 (2 pins)	1.8 (4 pins)	2.8 (2 pins)	2.7 (2 pins)	3.0 (2 pins)
Working Voltage (VAC)	125	300	195	185	240	235	215
PCIe® Compatibility	4.0	5.0	2.0	2.0	4.0	5.0	4.0
ELECTRICAL PERFORMANCE (HIGH FREQUENCY)							
Designed to be Impedance Matched	Yes	Yes	No			Yes	No
Channel Performance Metric (Gbps)	56 PAM4		14	25	28	56 PAM4	28
Characteristic Impedance (Single-Ended, 30 ps rise time, Ohms)	42-55	85	46-58	41-56	43-58	Differential Pair	
ENVIRONMENTAL PERFORMANCE							
Durability (Cycles)	100	25	100	1,000			100
MFG Tested	No			Yes		No	
Au is the only interface finish available. Recommended operating environment is a controlled environment.							

	SAL1	MEC1	HSEC1	PCI-E-LP	PCI-E	MECF	MEC2
METROLOGY							
Pitch	1.00 mm				1.27 mm		2.00 mm
Total Pin Counts	20, 27, 30, 40	20-140	20-140	36 (x1), 64 (x4), 98 (x8), 164 (x16)		10-100	10-100
Linear Density (circuits/mm)	1.96	1.88	1.76	1.84		1.48	0.97
Card Thickness	Variable		.062"			.062" & .093"	
Orientations Available	PT	V, RA, EM	V		V, RA, EM	V	
MECHANICAL PERFORMANCE							
Average Normal Force per Circuit (GRF)	80	60		75	55	70	
Wipe (mm)	1.50	2.95	2.00	2.70	3.50	3.00	
Mating/Unmating Force per Circuit (GRF)	40/30	40/20		30/15		45/20	
ELECTRICAL PERFORMANCE (LOW FREQUENCY)							
Current Carrying Capacity (Amps)	2.9 (2 pins)	2.2 (2 pins)		2.1 (2 pins)	2.4 (2 pins)	3.5 (2 pins)	
Working Voltage (VAC)	215	250	215	215		280	238
PCIe® Compatibility	2.0	2.0	4.0	4.0	3.0	2.0	2.0
ELECTRICAL PERFORMANCE (HIGH FREQUENCY)							
Designed to be Impedance Matched	No			No		No	
Channel Performance Metric (Gbps)	14		28	28	14	25	14
Characteristic Impedance (Single-Ended, 30 ps rise time, Ohms)	43-70	33-57	45-55	Differential Pair		43-70	43-58
ENVIRONMENTAL PERFORMANCE							
Durability (Cycles)	100	500	1,000	100			
MFG Tested	No		Yes	No	Yes	No	
Au is the only interface finish available. Recommended operating environment is a controlled environment.							

All products are tested to a standard amplitude and frequency; this parameter gives an average resistance change as a result of that standardized test. Unless otherwise approved in writing by Samtec, all parts and components are designed and built according to Samtec's specifications which are subject to change without notice.



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