PCI Express - Right Angle Connectors

DESCRIPTION

GENERAL

Right Angle Connectors

These card edge connectors are designed to meet the requirements of PCI Express architectures that call for a high performance point-to-point, full duplex I/O Bus connector. While most PCI Express connectors available in the market are vertical, the ERNI PCIe connectors are right-angled, designed for solving space constrained applications where low clearance above the PCB prohibits the use of vertical configurations.
Right-angled PCIe connectors are compatible with 1.6 mm to 2.4 mm thick motherboards and 1.6 mm thick daughter cards. These robust PCIe connectors are available in 3 stack heights, and are equipped with molded polarization keys to prevent improper insertion of the daughter cards. The connectors provide solder termination. The layout is arranged in a 4-row format with 1 mm pitch and the provision of 2 holes for locater pegs. This enables the connector to be securely assembled and easy soldered through a lead-free wave soldering process. The ERNI PCIe connectors are available in 85 Ohm and 100 Ohm versions.

PCI Express - Right Angle Connectors

DESCRIPTION

TECHNICAL DETAILS

Pitch	1.0 mm
No of Pins	X1=36, X4=64, X8=98, X16=164, X24=230
Termination	Solder
Terminal Length	2.54 mm, 3.18 mm
Impedance	85 Ohm, 100 Ohm
Packaging	Tray packaging for automatic assembly
Variants	Right Angle Connectors 3 different stack heights
Standard	Meets all PCIe Local Bus Standards Rev. 2.0

Stack Heights:
5.84 mm
11.18 mm
16.69 mm

ELECTRICAL AND MECHANICAL CHARACTERISTICS

TECHNICAL DATA

Description	Standard	Right Angle Edge Card Connectors
Number of Pins		X1=36, X4=64, X8=98, X16=164, X24=230
Temperature range		-40 to +105 °C
Current rating per contact		1.1 A continius
Voltage rating		max. 300 V
Dielectric strength		>500 VAC at 60 Hz
Conductor resistance		< 40 mΩ
Insulation resistance		>1 x 10^9 MΩ at 500 VDC
Capacitance at 1 kHz		As advertised
Inductance at 10 kHz		As advertised
Impedance		85 Ω or 100 Ω
Crosstalk		Next >30 dB at 2.0 GHz
Propagation delay		As advertised
Insertion loss (for stack height 5.84 mm)		<1 dB at 1.0 GHz <3 dB at 2.5 GHz
Return loss (for stack height 5.84 mm)		>12 dB at 1.25 GHz >7 dB at 1.5 GHz >4 dB at 2.0 GHz
Processing Conditions		
Dip soldering temperature max.	IEC 68-2-20	10 s at 260 °C
Reflow soldering temperature max.	JEDEC J-STD-020	20 - 90 s at 260 °C

ELECTRICAL AND MECHANICAL CHARACTERISTICS

Description	Standard	Right Angle Edge Card Connectors
Housing Material		
Plastic material		LCP 30% glass-filled
UL flame rating		UL 94 V-0
Contact Material		
Base material		Cu alloy
Mating area		gold plating
Termination area		gold plating
Environment Compatibility		
Recycling		no flame-retardent additives, no toxic additives allow easy recycling

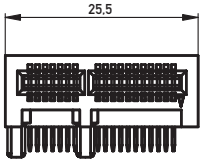
PCI Express - Right Angle Connectors

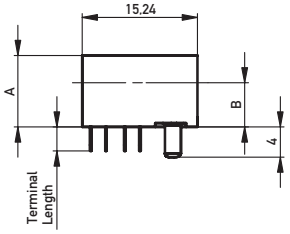
X1 LINK WIDTH, 36 PIN

PRODUCT SPECIFICATION

- Solder termination
- 85 Ohm and 100 Ohm versions
- The layout is arranged in a 4-row format with 1 mm staggered pitch
- Plastic cover protects connector from dust and debris
- Two locater pegs with interference fit to pcb for reliable processing
- Tray packaging for automatic assembly

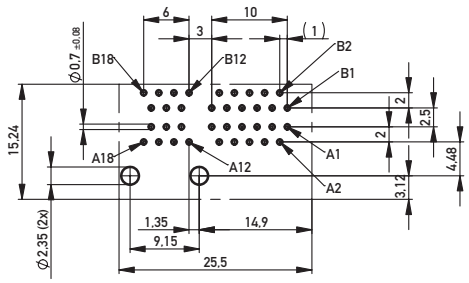
DIMENSIONAL DRAWINGS





16.69	20.30
11.18	14.70
5.84	9.40
Assembly Stack Height	A

Recommended Layout



PCI Express - Right Angle Connectors

X1 LINK WIDTH, 36 PIN

ORDERING INFORMATION

Assembly Stack Height (mm)	Terminal Length (mm)	Impedance (Ω)	Contact Plating	Part Number
5.84	2.54	100	min. 0.127 µm Au	009000
5.84	3.18	100	min. 0.127 µm Au	009020
5.84	2.54	100	min. 0.8 µm Au	009040
5.84	3.18	100	min. 0.8 µm Au	009060
5.84	2.54	85	min. 0.127 µm Au	009101
5.84	3.18	85	min. 0.127 µm Au	009301
5.84	2.54	85	min. 0.8 µm Au	009201
5.84	3.18	85	min. 0.8 µm Au	009401
11.18	2.54	100	min. 0.127 µm Au	009001
11.18	3.18	100	min. 0.127 µm Au	009021
11.18	2.54	100	min. 0.8 µm Au	009041
11.18	3.18	100	min. 0.8 µm Au	009061
11.18	2.54	85	min. 0.127 µm Au	009501
11.18	3.18	85	min. 0.127 µm Au	009701
11.18	2.54	85	min. 0.8 µm Au	009601
11.18	3.18	85	min. 0.8 µm Au	009801
16.69	2.54	100	min. 0.127 µm Au	009002
16.69	3.18	100	min. 0.127 µm Au	009022
16.69	2.54	100	min. 0.8 µm Au	009042
16.69	3.18	100	min. 0.8 µm Au	009062

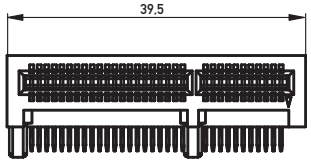
PCI Express - Right Angle Connectors

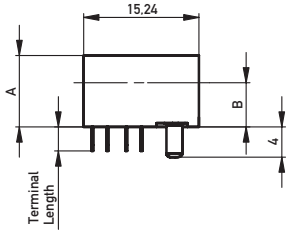
X4 LINK WIDTH, 64 PIN —

PRODUCT SPECIFICATION

- Solder termination
- 85 Ohm and 100 Ohm versions
- The layout is arranged in a 4-row format with 1 mm staggered pitch
- Plastic cover protects connector from dust and debris
- Two locater pegs with interference fit to pcb for reliable processing
- Tray packaging for automatic assembly

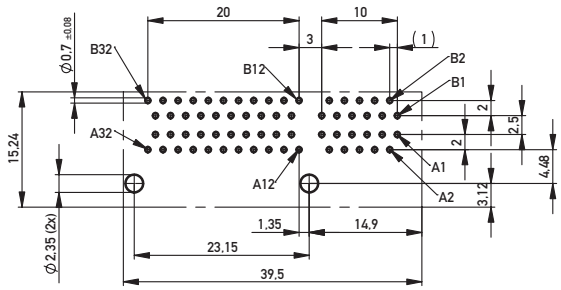
DIMENSIONAL DRAWINGS





16.69	20.30
11.18	14.70
5.84	9.40
Assembly Stack Height	A

Recommended Layout



PCI Express - Right Angle Connectors

X4 LINK WIDTH, 64 PIN

ORDERING INFORMATION

Assembly Stack Height (mm)	Terminal Length (mm)	Impedance (Ω)	Contact Plating	Part Number
5.84	2.54	100	min. 0.127 µm Au	009003
5.84	3.18	100	min. 0.127 µm Au	009023
5.84	2.54	100	min. 0.8 µm Au	009043
5.84	3.18	100	min. 0.8 µm Au	009063
5.84	2.54	85	min. 0.127 µm Au	009104
5.84	3.18	85	min. 0.127 µm Au	009304
5.84	2.54	85	min. 0.8 µm Au	009204
5.84	3.18	85	min. 0.8 µm Au	009404
11.18	2.54	100	min. 0.127 µm Au	009004
11.18	3.18	100	min. 0.127 µm Au	009024
11.18	2.54	100	min. 0.8 µm Au	009044
11.18	3.18	100	min. 0.8 µm Au	009064
11.18	2.54	85	min. 0.127 µm Au	009504
11.18	3.18	85	min. 0.127 µm Au	009704
11.18	2.54	85	min. 0.8 µm Au	009604
11.18	3.18	85	min. 0.8 µm Au	009804
16.69	2.54	100	min. 0.127 µm Au	009005
16.69	3.18	100	min. 0.127 µm Au	009025
16.69	2.54	100	min. 0.8 µm Au	009045
16.69	3.18	100	min. 0.8 µm Au	009065

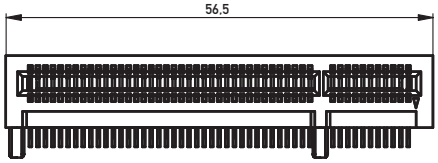
PCI Express - Right Angle Connectors

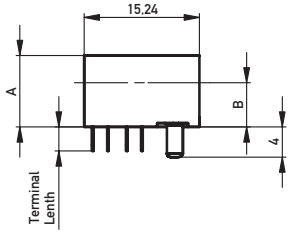
X8 LINK WIDTH, 98 PIN

PRODUCT SPECIFICATION

- Solder termination
- 85 Ohm and 100 Ohm versions
- The layout is arranged in a 4-row format with 1 mm staggered pitch
- Plastic cover protects connector from dust and debris
- Two locater pegs with interference fit to pcb for reliable processing
- Tray packaging for automatic assembly

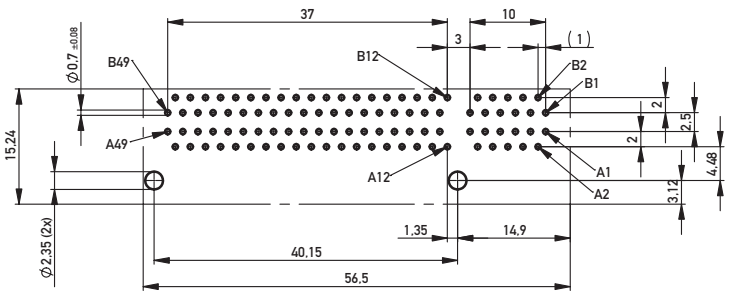
DIMENSIONAL DRAWINGS





16.69	20.30
11.18	14.70
5.84	9.40
Assembly Stack Height	A

Recommended Layout



PCI Express - Right Angle Connectors

X8 LINK WIDTH, 94 PIN

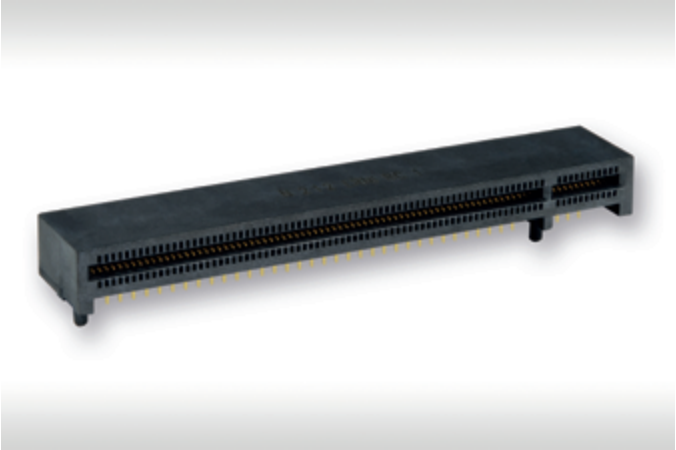
ORDERING INFORMATION

Assembly Stack Height (mm)	Terminal Length (mm)	Impedance (Ω)	Contact Plating	Part Number
5.84	2.54	100	min. 0.127 µm Au	009006
5.84	3.18	100	min. 0.127 µm Au	009026
5.84	2.54	100	min. 0.8 µm Au	009046
5.84	3.18	100	min. 0.8 µm Au	009066
5.84	2.54	85	min. 0.127 µm Au	009108
5.84	3.18	85	min. 0.127 µm Au	009308
5.84	2.54	85	min. 0.8 µm Au	009208
5.84	3.18	85	min. 0.8 µm Au	009408
11.18	2.54	100	min. 0.127 µm Au	009007
11.18	3.18	100	min. 0.127 µm Au	009027
11.18	2.54	100	min. 0.8 µm Au	009047
11.18	3.18	100	min. 0.8 µm Au	009067
11.18	2.54	85	min. 0.127 µm Au	009508
11.18	3.18	85	min. 0.127 µm Au	009708
11.18	2.54	85	min. 0.8 µm Au	009608
11.18	3.18	85	min. 0.8 µm Au	009808
16.69	2.54	100	min. 0.127 µm Au	009008
16.69	3.18	100	min. 0.127 µm Au	009028
16.69	2.54	100	min. 0.8 µm Au	009048
16.69	3.18	100	min. 0.8 µm Au	009068

PCI Express - Right Angle Connectors

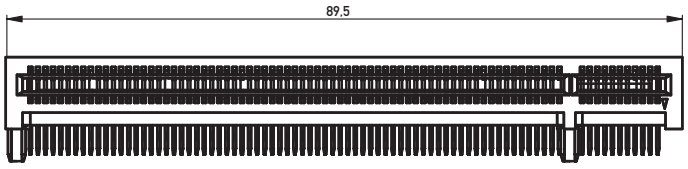
X16 LINK WIDTH, 164 PIN —

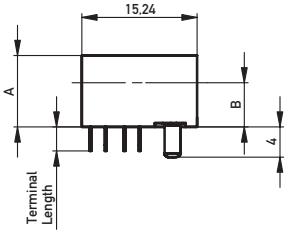
PRODUCT SPECIFICATION



- Solder termination
- 85 Ohm and 100 Ohm versions
- The layout is arranged in a 4-row format with 1 mm staggered pitch
- Plastic cover protects connector from dust and debris
- Two locater pegs with interference fit to pcb for reliable processing
- Tray packaging for automatic assembly

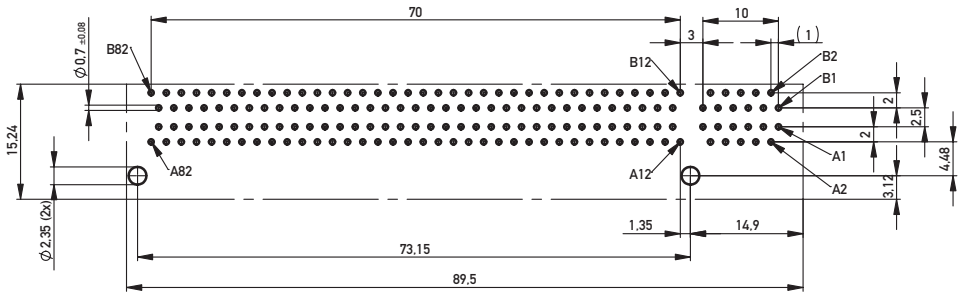
DIMENSIONAL DRAWINGS





16.69	20.30
11.18	14.70
5.84	9.40
Assembly Stack Height	A

Recommended Layout



PCI Express - Right Angle Connectors

X16 LINK WIDTH, 164 PIN

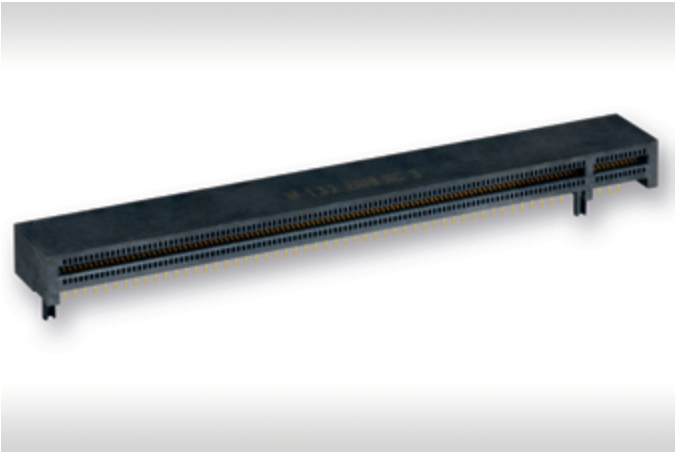
ORDERING INFORMATION

Assembly Stack Height (mm)	Terminal Length (mm)	Impedance (Ω)	Contact Plating	Part Number
5.84	2.54	100	min. 0.127 µm Au	009009
5.84	3.18	100	min. 0.127 µm Au	009029
5.84	2.54	100	min. 0.8 µm Au	009049
5.84	3.18	100	min. 0.8 µm Au	009069
5.84	2.54	85	min. 0.127 µm Au	009116
5.84	3.18	85	min. 0.127 µm Au	009316
5.84	2.54	85	min. 0.8 µm Au	009216
5.84	3.18	85	min. 0.8 µm Au	009416
11.18	2.54	100	min. 0.127 µm Au	009010
11.18	3.18	100	min. 0.127 µm Au	009030
11.18	2.54	100	min. 0.8 µm Au	009012
11.18	3.18	100	min. 0.8 µm Au	009070
11.18	2.54	85	min. 0.127 µm Au	009516
11.18	3.18	85	min. 0.127 µm Au	009716
11.18	2.54	85	min. 0.8 µm Au	009616
11.18	3.18	85	min. 0.8 µm Au	009816
16.69	2.54	100	min. 0.127 µm Au	009011
16.69	3.18	100	min. 0.127 µm Au	009031
16.69	2.54	100	min. 0.8 µm Au	009051
16.69	3.18	100	min. 0.8 µm Au	009071

PCI Express - Right Angle Connectors

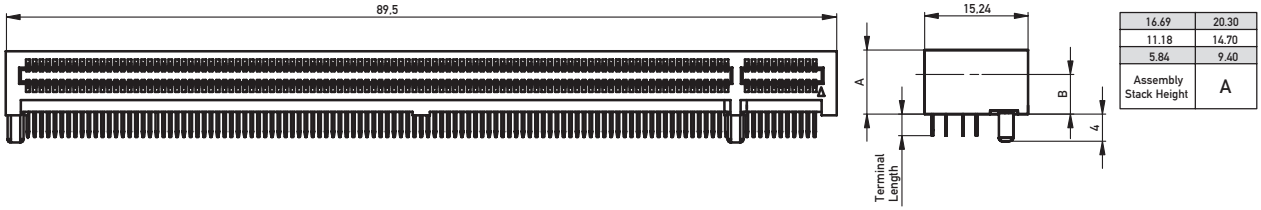
X24 LINK WIDTH, 230 PIN —

PRODUCT SPECIFICATION

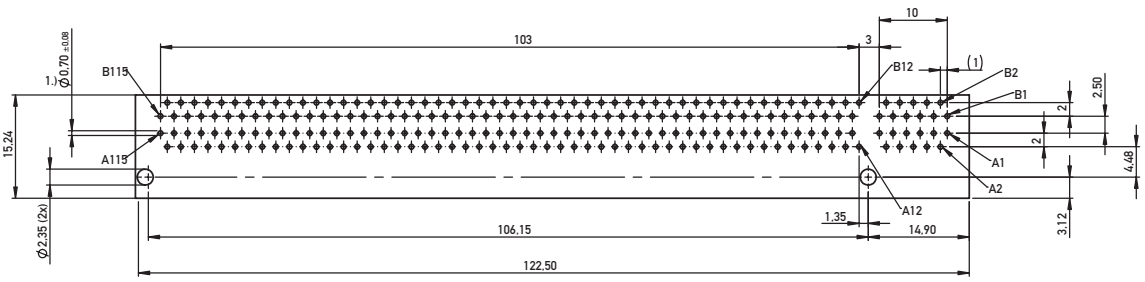


- Solder termination
- 85 Ohm versions
- The layout is arranged in a 4-row format with 1 mm staggered pitch
- Plastic cover protects connector from dust and debris
- Two locater pegs with interference fit to pcb for reliable processing
- Tray packaging for automatic assembly

DIMENSIONAL DRAWINGS



Recommended Layout



X24 LINK WIDTH, 230 PIN

ORDERING INFORMATION

Assembly Stack Height (mm)	Terminal Length (mm)	Impedance (Ω)	Contact Plating	Part Number
5.84	2.54	85	min. 0.127 µm Au	009124
5.84	3.18	85	min. 0.127 µm Au	009324
5.84	2.54	85	min. 0.8 µm Au	009224
5.84	3.18	85	min. 0.8 µm Au	009424
11.18	2.54	85	min. 0.127 µm Au	009524
11.18	3.18	85	min. 0.127 µm Au	009724
11.18	2.54	85	min. 0.8 µm Au	009624
11.18	3.18	85	min. 0.8 µm Au	009824

PART NUMBER INDEX

PART NUMBER INDEX

THE ERNI-GROUP

OUR MANUFACTURING LOCATIONS

ACT.
CONNECT.
PERFECT.

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