



Colibri for COM Express[®] 0.5 mm SMT Board-to-Board Connector System

Colibri Introduction



Colibri – 0.5 mm SMT for 10+ Gbit/s Applications

Connectors for COM Express®

ept's Colibri connector is a shielded, 2-row, SMT interconnect system in 0.5 mm pitch.

It is designed to meet the requirements according to specifications not only of PICMG COM Express[®], but also of SFF-SIG Core Express[®] and nano-ETXexpress and can be used in highspeed applications with 10 Gbit/s and more. Furthermore Colibri[®] products are compatible with all common connectors available on the market and have been tested extensively.

The connector system is available with 8 mm and 5 mm stacking heights plus 40 - 440 pins. Colibri® connectors are packaged in "Tape and Reel" to allow fully automated processing.

Additional versions with flexible pin count as well as multiple stacking heights are available on request.

Key Features:

- for applications with 10+ Gbit/s
- meets the requirements of PICMG COM Express[®] and SFF-SIG CoreExpress[®]
- intermatability with available connectors in the market
- robust connector design
- integrated Pick & Place area
- packed in Tape & Reel

Applications:

- COM Express[®]
- CoreExpress[®]
- mezzanin board-to-board

Termination



Mating configuration



Parallel 5 or 8 mm

Application



High Speed



High Density

Overview

Туре		Number of pins	Board type	Mating connector	Page reference
	Colibri Plug	40 / 80 / 120 / 160 / 200 / 220 / 440	COM Express® Base Board	Colibri Receptacle	22 26
	Colibri Receptacle	40 / 80 / 120 / 160 / 200 / 220 / 440	COM Express® COM Module	Colibri Plug	24 28

Watch the new Colibri movie:



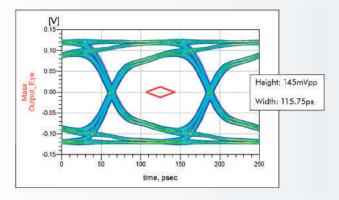
https://youtu.be/rBry52V774Y

Colibri Introduction

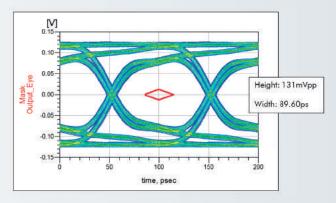
Your Com Express[®] Application needs more Speed? Colibri Connectors manage 10 Gbit/s and more!

Colibri[®] connectors are specially designed for High Speed applications. Looking at the eye diagrams below, you can see that the connectors still show a very high signal quality at 10 Gbit/s compared to 8 Gbit/s. They are therefore highly suitable for High Speed applications with 10 Gbit/s and more.

$8~Gbit/s,\,2x50mm$ PCB trace length, 100Ω impedance, simulated according to PCIe Gen 3



10 Gbit/s, 2x50mm PCB trace length, 100 Ω impedance, simulated according to 10GBase-KR



Differential Impedance of a Colibri Connector Set



A differential signal was inserted into the plug side of the connector with a 25ps rise time.

A detailed report about the simulation with 10 Gbit/s as well as S-parameters for the simulation of your own design are available on request.



Colibri Introduction

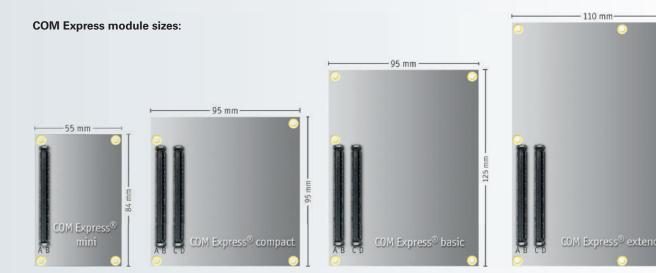
COM Express[®]

COM Express®

COM Express®, a computer-on-module (COM) form factor, was developed and is maintained by PICMG (PCI Industrial Computer Manufacturers Group). The standard defines not only the physical dimensions and placement of the module on the carrier board, but also the connectors used to plug the COM with the carrier board. COM Express modules integrate the core functionalities of a bootable PC, such as CPU, RAM and standard interfaces on a module that is plugged by either one or two connectors on an individually designed carrier board. ept's Colibri connectors are specified in the latest release of the PICMG Design Guide for COM Express.

The ability to plug a COM Express module onto a carrier board reduces time and cost to develop a product, as the user does not need to understand the often complex details associated with high speed signaling or the latest chip sets. Furthermore, product lifetime can be increased, as newer COM Express modules can simply be plugged onto the carrier board to improve performance.

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Typical applications:

- Industrial Automation
- POS-systems
- Medical
- Instrumentation
- Consumer electronics & Gaming
- Transportation
- Building Technology

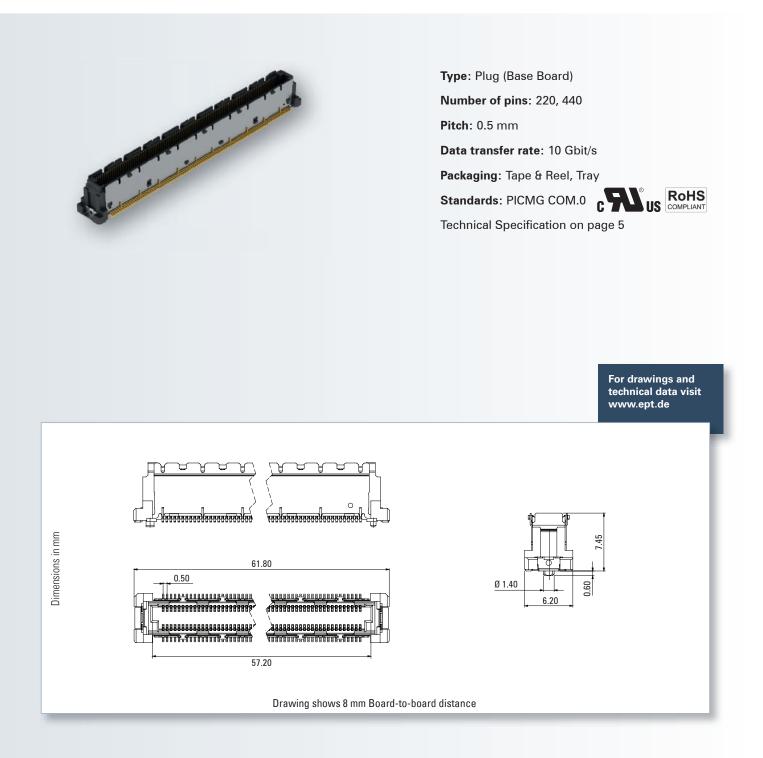


Technical Specifications

		Colibri [®] for COM Express [®]
Technical Specification	Testing Standard	0.5 mm SMT Board-to-Board connector system
Basics		
Specification		PICMG COM.0
Number of pins		40 / 80 / 120 / 160 / 200 / 220 / 440
Termination		SMT
Operating temperature range		-40°C to +125°C
Material		
Insulator material		LCP
Contact material		Copper alloy
Contact surface		Au over Ni
Mechanical		
Pitch		0.5 mm
Mating force per pin		max. 0.9 N
Separating force per pin		min. 0.1 N
Durability	IEC 60512-9-1:2010	30 mating cycles
Coplanarity		max. 0.1 mm
Electrical		
Operational current	IEC 60512-5-2:2002	max. 0.5 A
Operating voltage		50 VAC
Contact resistance	IEC 60512-2-1:2002	max. 7 5 mΩ
Insulation resistance	IEC 60512-3-1:2002	> 100 MΩ
Test voltage	IEC 60512-4-1:2003	200 VAC
Data transfer rate		10 Gbit/s
Processing		
Soldering temperature		260°C according to J-STD-020
MSL		1
Packaging		Tape and Reel or Tray
Assembly		Pick and place
Approval		
UL file		E130314
Environment		RoHS compliant

Colibri Plug Male Connector / Base Board





Note

All Colibri connectors also available with heavy gold plating (see ordering note on p. 7)

Mating connector / Application:

Colibri Receptacle (p. 8)



	וm board-to-boar	d distan	ce 	
		Colibri	[®] Plug	
		Pack	aging	
	Tape & Reel		Тгау	
Number of pins	Part number	PU	Part number	PU
220	401-55101-51	600	401-55101-51VP1	336
440	401-55501-51	240	401-55501-51VP1	168

Ordering note

All pin numbers are also available with heavy gold plating; therefore please use the ending "52" instead of 51 in the part number

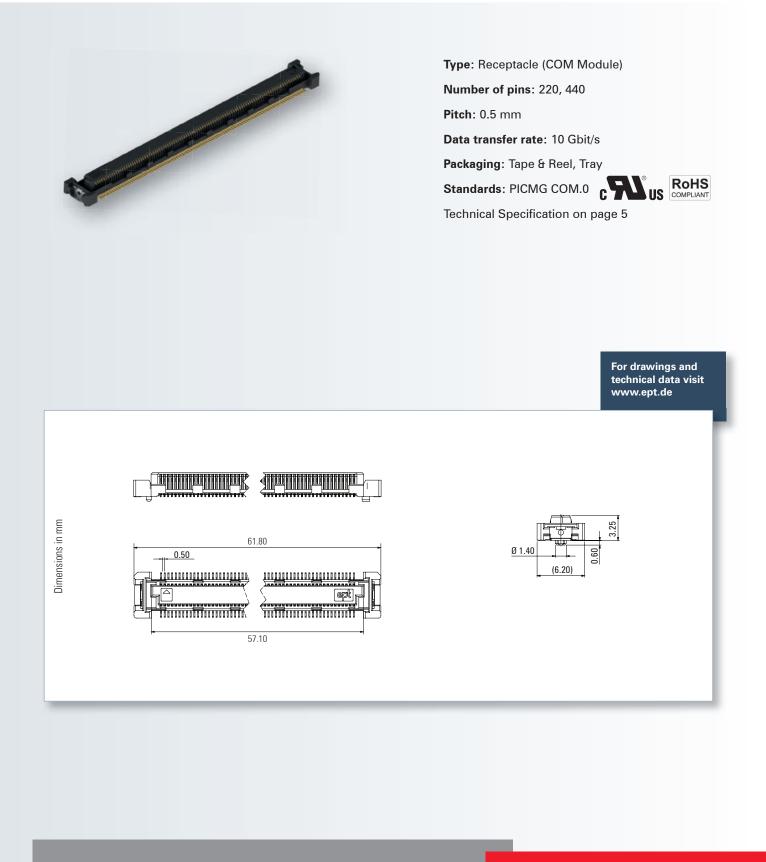
On request

- other board-to-board distances
- alternative contact surface
- with pick & place cap

		Colibri	[®] Plug	
		¢ a	45	
		Pack	aging	
	Tape & Reel		Tray	
Polzahl	Part number	PU	Part number	VPE
220	401-51101-51	875	401-51101-51VP1	336
440	401-51501-51	350	401-51501-51VP1	168







Hint

All Colibri connectors also available with heavy gold plating (see ordering note on p. 9)

Mating connector / Application:

Colibri Plug 5 mm & 8 mm (p. 6)



		Colibri® R	eceptacle		
			25		
		Pack	aging		
	Tape & Reel		Tray		Ordering not
Number of pins	Part number	PU	Part number	PU	All pin numbers are a with heavy gold platin
220	402-51101-51	1050	402-51101-51VP1	336	please use the ending stead of 51 in the part On request
440 with pick & place cap	402-51501-51	400	402-51501-51VP1	168	alternative contact :



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surface

Colibri Plug Male Connector

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Hint

All Colibri connectors also available with heavy gold plating (see ordering note on p. 11)

Mating connector / Application:

Colibri Receptacle (p. 12)

	Colibri® Plug		
Number of pins	Part number	PU (Tape & Reel)	
40	401-55701-51		
80	401-55601-51		
120	401-55401-51	600	
160	401-55301-51		
200	401-55201-51		
			All pin numbers are with heavy gold pla
5 n	nm board-to-board distance		All pin numbers are with heavy gold pla please use the end stead of 51 in the p On request • other board-to-bo
5 n	nm board-to-board distance Colibri® Plug		All pin numbers are with heavy gold pla please use the end stead of 51 in the p On request • other board-to-bo • alternative contact
5 n	0 0		All pin numbers are with heavy gold pla please use the endi stead of 51 in the pa On request • other board-to-bo • alternative contact
5 n Number of pins	Colibri® Plug	PU (Tape & Reel)	All pin numbers are with heavy gold pla please use the endi stead of 51 in the pa On request • other board-to-bo • alternative contact
	Colibri® Plug		All pin numbers are with heavy gold pla please use the endi stead of 51 in the pa On request • other board-to-bo • alternative contact
Number of pins	Colibri® Plug		All pin numbers are with heavy gold pla please use the endi stead of 51 in the pa On request • other board-to-bo • alternative contact
Number of pins	Colibri® Plug		All pin numbers are with heavy gold pla please use the endi stead of 51 in the pa On request • other board-to-bo • alternative contact
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Colibri Receptacle Female Connector

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Hint

All Colibri connectors also available with heavy gold plating (see

Mating connector / Application:

Colibri Plug 5 mm & 8 mm (p. 10)

	Colibri® Recept	acle	
Number of pins	Part number	PU (Tape & Reel)	
40	402-51701-51		
80	402-51601-51		
120	402-51401-51	1050	
160	402-51301-51		Ordering no
200	402-51201-51		with heavy gold pl please use the end stead of 51 in the p

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• alternative contact surface

Colibri More Information & Product Samples

For more Information visit Sie www.ept.de!

On our website, **www.ept.de**, we offer a broad range of information, downloads, and interactive search functions for our connectors:

- component data that can be downloaded in 3D format (IGES, STEP) and 2D format (DXF)
- a product finder for choosing connectors based on your individual requirements
- an order form for product samples
- technical information, recommendations for processing
- drawings of individual products in PDF format

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Packaging										
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Product Samples

You can receive product samples from ept quickly, easily, and free of charge, either by making a quick and easy selection at www.ept.de, or by contacting us directly and discussing your needs with us personally, especially if you have specific requirements, such as modifications. For detailed discussion and individual consultation, you can speak to our sales representative in your area, our service staff in Peiting, our local business partner or retailer as well as selected catalog distributors.

We are standing by to advise you!



International Presence - the ept Locations

ept's roots are located in the scenic landscape of southern Bavaria and from there ept has set out to become an international company. With production locations and sales offices in several countries as well as competent partners all over the world, ept is able to offer its connectors and solutions worldwide.

ept - your global partner



For your local contact please refer to www.ept.de



ept designs, produces and distributes electronic connectors for highquality applications. Founded by Bernhard Guglhör over 40 years ago, we are proud to remain an independent and family owned company. Today, we employ about 1,200 people at six locations worldwide.

Over decades we have built trusting and successful partnerships with our customers, who are the primary focus of all. Our products and core competencies are used in high-level applications.

With our motto "Precision with Passion" ept stands for the highest quality and reliability under the personal and individual touch of dedicated employees.

We are looking forward to working with you. Your ept-Team

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