

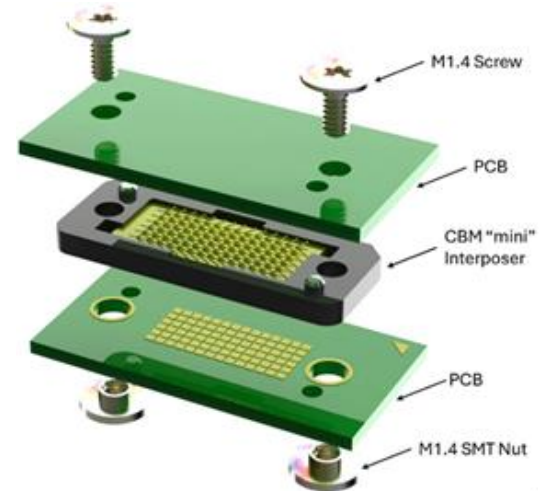
Product Specification: CBM Family of Standard Interposers

FEATURES

- High Performance C-Beam™ Connector Technology
- Product options at 0.50 and 0.60mm pitch
- Standard interposer thickness of 1.3mm
- Pick & place compatible Neoconix standard nut hardware
- RoHS 2011/65/EU compliant

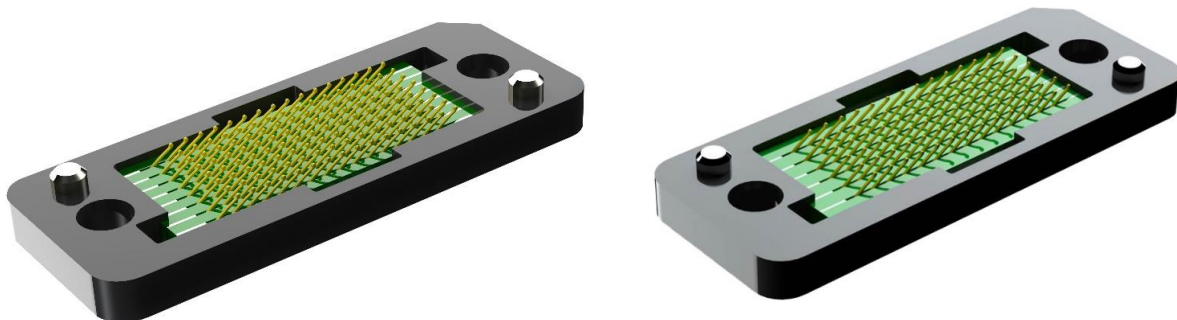
OVERVIEW

Utilizing C-Beam™ technology, the **CBM** family of standard connectors are designed for high performance Board-to-Board (BtB) applications. The large pin counts enable combining numerous high speed differential pairs, high power, and signals in one connector. Compatible Screw & Nut hardware is available for simple assembly into the host system.



Standard configurations are as shown below:

Item	INTERPOSER PART NUMBER	PITCH (mm)	POSITIONS	ROWS	COLS	LENGTH (mm)	WIDTH	MATED HEIGHT
1	CBM-XB084A	0.60	84	8	16	16.6	6.4mm	1.3mm
2	CBM-XB128A	0.50	128		14			

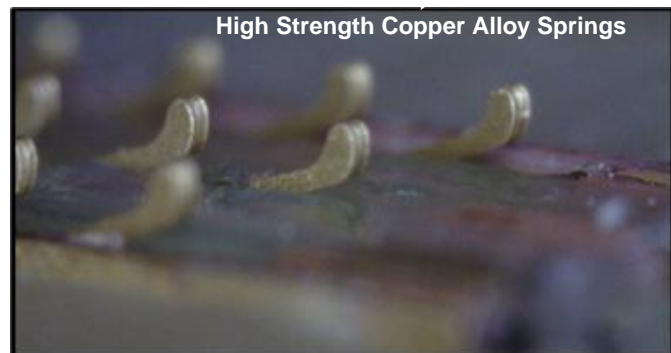


C-Beam™ TECHNOLOGY BACKGROUND:

Neoconix interposers are built using innovative C-Beam™ technology. Based on the principles of printed circuit board processing, this lithography & etch based manufacturing method provides unparalleled design flexibility, precision, and performance.

Neoconix' C-Beam interposers and product extensions offer many features, including the following:

- Continuous, all-metal spring contacts
- Large spring deflection up to 0.40mm to tolerate flatness variations on mating boards
- High speed to 112Gbps
- Integrated contact elements – no loose pieces
- Integrated Alignment Features
- Low profile to 1.1mm.
- High density capabilities at 0.50mm array pitch and 0.50mm row pitch
- Excellent true position capabilities
- High volume manufacturing in Asia-Pacific



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CBM INTERPOSER SPECIFICATIONS*
MECHANICAL

Contact Configuration.....	single-beam, LGA/LGA
Contact Pitch.....	0.6mm & 0.5mm
Typical Load / Contact	25g
Contact Deflection / Side	0.20mm
Contact Deflection Both Sides	0.40mm

ELECTRICAL

Current Rating/Pin, Single Pin	0.75A per position
Average Resistance.....	< 30mΩ per position
Insertion Loss @ 28GHz (56Gbps), 1.3mm thickness.....	< 1dB
Dielectric Withstanding Voltage.....	100 VAC
Insulation Resistance.....	100 MΩ

ENVIRONMENTAL

Operating Temperature.....	-40°C to 105°C
Storage Temperature.....	-40°C to 105°C
Humidity.....	500 hrs, 80% RH, 25°C to 85°C
Heat Aging.....	500 hrs, 100°C
Temperature Cycling.....	1,000 cycles, 0°C to 100°C
Thermal Shock.....	10 cycles, -40°C to 60°C
Salt Spray.....	48 hrs
Mechanical Shock.....	50 g, 3 axis
Random Vibration.....	0.02-0.04 g ² /Hz, 3 axis
Insertions.....	100 mating cycles

MATERIALS

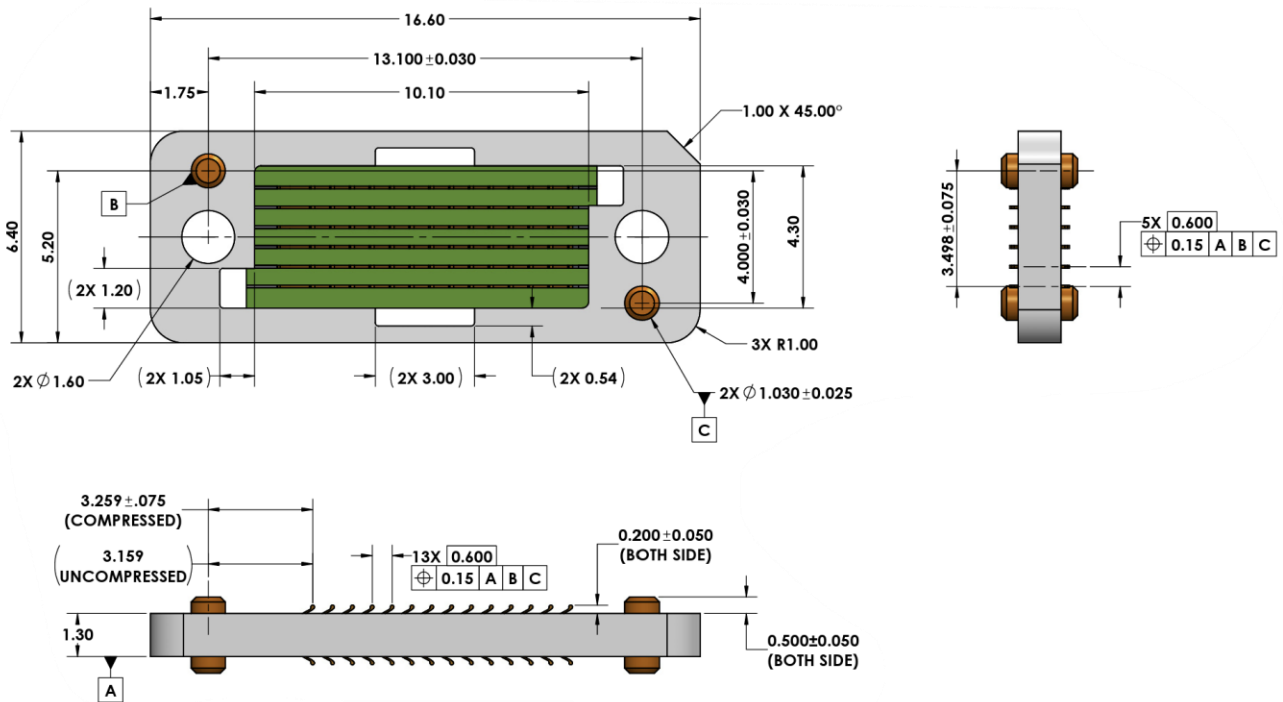
Core Dielectric.....	laminate
Frame.....	high-temperature thermoplastic
Contact Elements.....	copper alloy
Contact Plating.....	15 μin hard Au over Ni

* Specifications are subject to change without notice.

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DIMENSIONAL INFORMATION - INTERPOSERS

(Example = CBM-XB084A, 84pos)



Note: This example is for reference only. Please refer to the product drawing for the specific part number of interest.

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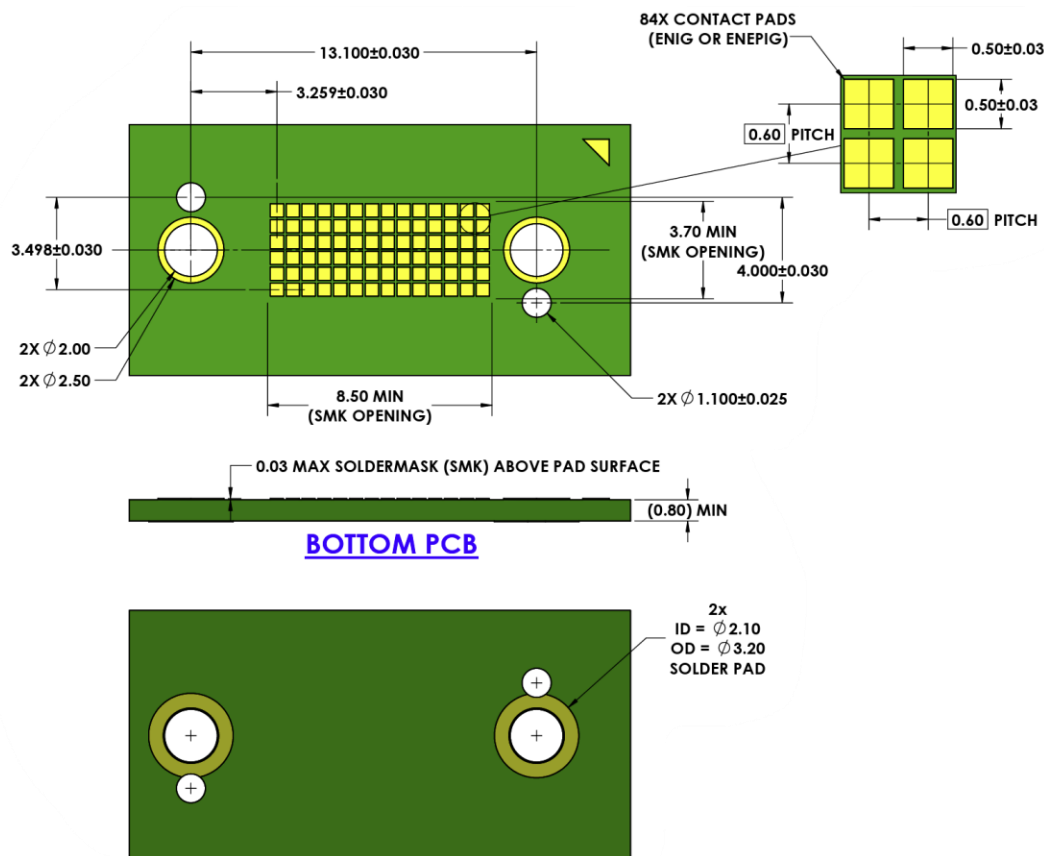
RECOMMENDED PCB DESIGN

(Example = CBM-XB084A, 84pos)

An example is shown below for reference. Detailed recommendations for each part number are included in each part number's drawing set.

The PCB mating pads must be gold plated with ENIG, ENEPIG, or electrolytic hard gold.

With the PCB layout, it is possible to deviate from the pad geometry shown, but a Neoconix review is suggested, and a separate tolerance analysis is recommended if the pad size will be smaller than shown below.

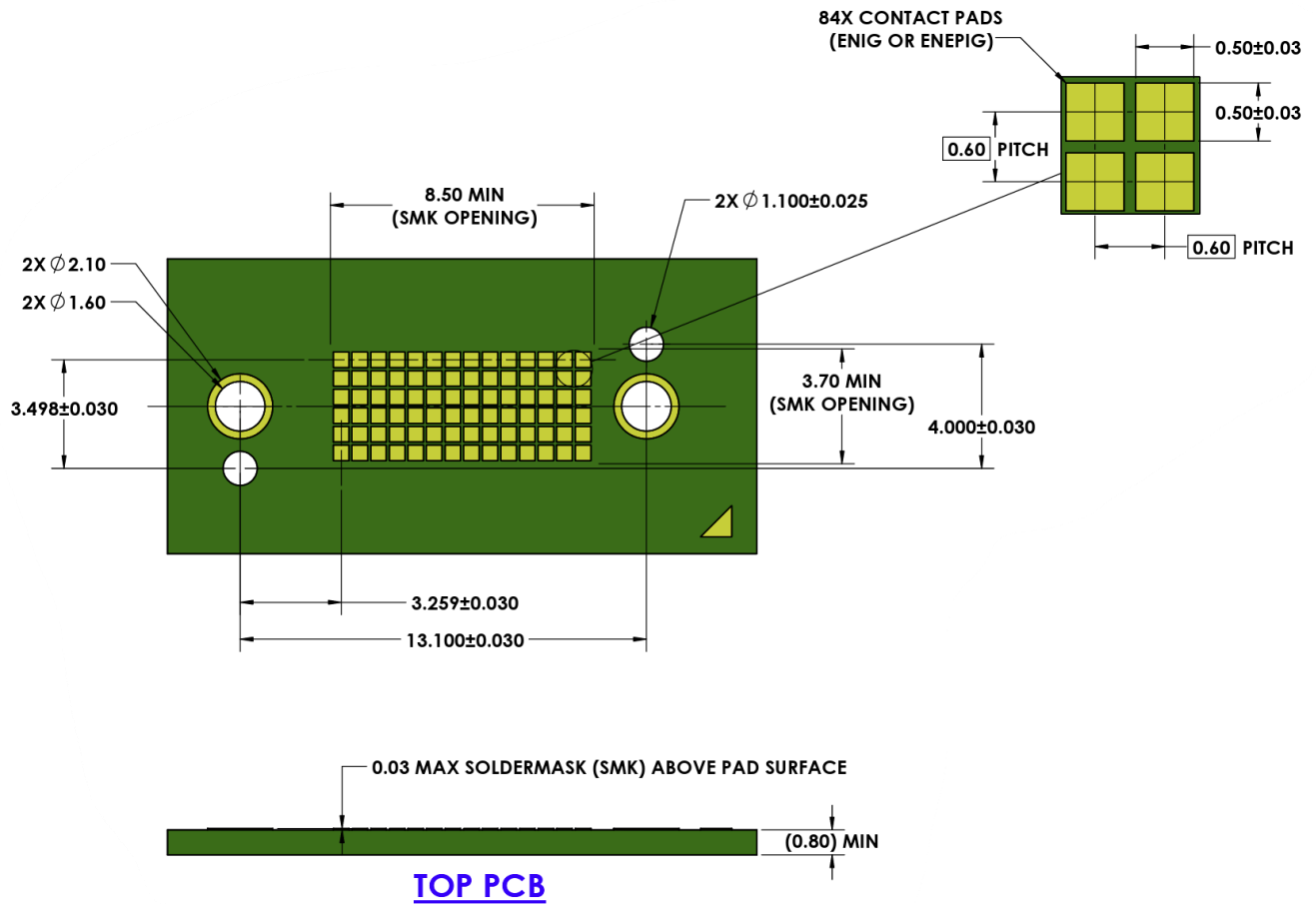


MINIMUM PCB THICKNESS: 0.80mm

IF THE VIA NEEDS TO BE LOCATED WITHIN THE 0.50 X 0.50 PAD, IT MUST BE FILLED, PLATED, AND PLANARIZED WITH 25um MAX DIMPLE.

SOLDERMASK APPLICATION IN THE ARRAY AREA IS OPTIONAL. IF APPLIED, IT SHALL NOT PROTRUDE MORE THAN 0.03mm ABOVE THE SURFACE OF THE MATING PADS

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COMPRESSION HARDWARE

Neoconix has developed standard hardware that can be used across all parts in the CBM family. The hardware consists of the following:

1. P/N B01-000581: M1.4 SMT Nut
2. *P/N B01-000796: M1.4 TORX Waferhead Screw, L=X mm

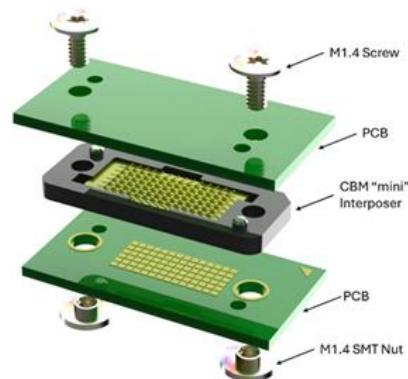
The SMT nut are provided in tape & reel packaging and can be reflowed to the PCB using normal Pb-free reflow procedures. The screw provides the necessary z-axis compression to engage the connector. The nut is soldered to the back-side of the PCB, and is shipped with a polyimide cover to facilitate pick & place.

*Please note that the standard TORX screw has been designed for common stack-ups (PCB + Interposer + PCB). The appropriate screw length will depend on PCB thickness used.

Table 2 Recommended screw length vs PCB thickness

PCB Thickness* (mm)	Description	Head Thickness (mm)	Head Type	Part Number
1.4-1.7	M1.4x0.30mm Pitch, 5mm Length	0.50	Torx T5	B01-000798
0.9-1.4	M1.4x0.30mm Pitch, 4mm Length	0.50	Torx T5	B01-000797
0.8-0.9	M1.4x0.30mm Pitch, 3mm Length	0.50	Torx T5	B01-000796

*Example: PCB (Top) thickness 0.80mm + PCB (Bottom) 0.80mm + Interposer Height (1.3mm) = 2.9mm Total Assy Height, use 3mm length screw.



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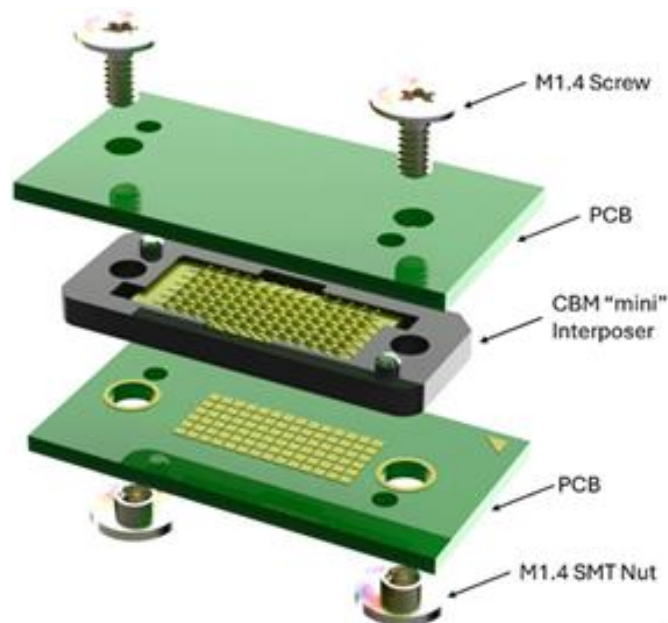
ASSEMBLY INSTRUCTIONS

The recommended assembly sequence is as follows:

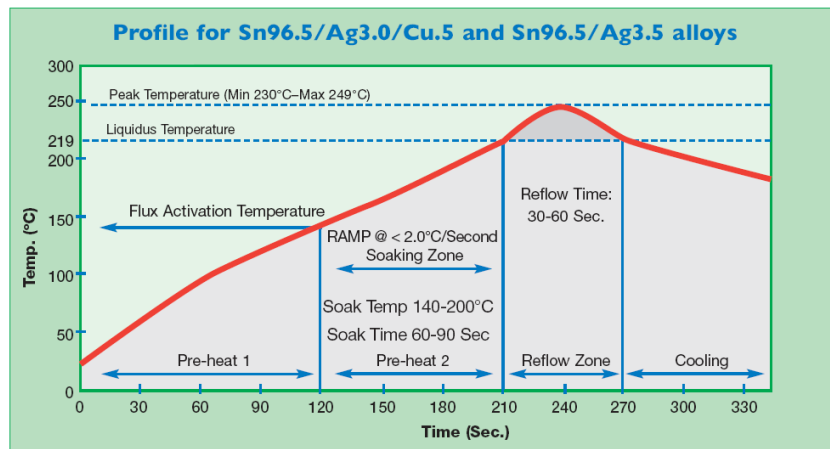
IMPORTANT: Handle interposers only by edges and avoid touching C-Beam contact elements. Likewise, avoid touching (and potentially contaminating) the gold mating pads on PCBs. The use of latex gloves is recommended.

1. Pre-assemble *nut* onto PCB using traditional lead-free reflow process (see example reflow profile below).
2. In a vertical motion, place the Interposer onto the Bottom PCB using the integrated alignment pins to align the interposer onto the PCB.
3. Place the Top PCB over the alignment pins.
4. Turn screw to engage connector. Recommended starting torque is 0.5 kg-cm. Some optimization testing may be required for your specific assembly.

Compression hardware can be custom designed when desired. Please ensure that the hardware solution provides sufficient rigidity assuming 0.25N of contact force is applied by each of the contact element positions. For example, an 84-position interposer would exert approximately 21N (or 5Lbs) of normal force.



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HANDLING GUIDELINES

- The use of latex gloves is recommended when handling interposers. As with any normal force connector, avoid touching contact tips and handle the product only by its edges.
- When clamping the assembly together, please ensure that the force is applied uniformly. Force should be applied vertically through the z-axis and not in an angled direction.
- Cleaning is typically not needed if the product is kept in original packaging. When necessary, cleaning can be employed with the use of compressed air. Direct the flow of air in the direction that the contact elements are pointing. Cleaning can also be performed with an ultrasonic bath of isopropyl alcohol (IPA). A 5-minute soak can be followed by a 10-minute bake at 65°C.
- When not in use, please keep product stored in original packaging.

ORDERING INFO

To obtain a quotation, please contact the Neoconix sales office at sales@neoconix.com or 408-530-9393. The CBM interposers, screws and nuts should be ordered separately.

Custom interposers and hardware are also available from Neoconix. Please contact the factory to request a quotation.

Corporate Headquarters:

Neoconix, Inc.
 4020 Moorpark Ave., #108
 San Jose, CA 95117
 (408) 530-9393 (phone)
 (408) 530-9383 (fax)
<http://www.neoconix.com>

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REVISION HISTORY

Rev	Date	ECN	Description
Rev A	Feb 2024	N/A	Initial release.

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