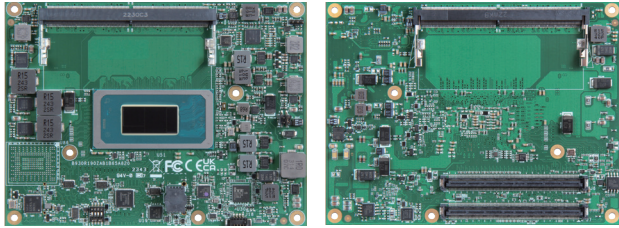# PCOM-B65A

COM Express Type 6 Basic Size module based on Intel® Core™ Ultra Processor Series with DDR5 SO-DIMM, DDI, PCIe Gen 4, USB 3.2 Gen2, 2.5 Gigabit TSN Ethernet, discrete TPM 2.0, eDP, SATA

FEATURES

- Intel® Core™ Ultra processors (15W~45W) on Intel® 4 lithography
- Up to 14 cores of 6 Performance-cores (P-cores) and 8 Efficient-cores (E-cores)
- Intel® Arc GPU† up to 8 Xe-cores (128 EUs)
- 2x DDR5-5600 non-ECC SO-DIMMs up to 96GB, 1x PCIe Gen 4 x8, 2x Gen 4 x4, and 8x PCIe Gen 3 x1
- 4x USB 3.2 Gen 2, 8x USB 2.0, 4x SATA III (2x shared with PCIe lane), 3x DDI, VGA, eDP/LVDS
- Options for onboard PCIe NVMe SSD

RoHS

The Portwell PCOM-B65A is a COM Express Type 6 Basic size module based on the Intel® Core™ Ultra processor platform (formerly Meteor Lake U & H series). Intel Core Ultra is the first processor built on Intel® 4 process, and the first to use Foveros 3D advanced packaging technology. With AI acceleration built into every processor integrating CPU, GPU and NPU into a single package, the leading-edge Intel Core Ultra processor series offers advanced computing performance with 15W~45W base power in BGA package to deliver small/sleek form factors and fanless options. More specifically, it features an NPU, or a neural processing unit, a dedicated AI engine to run AI models at low power for greater efficiency. The Intel Core Ultra processors also feature an Intel® Arc™ GPU† featuring up to 8 Xe-cores (128 EUs), and AI-based Xe Super Sampling (XeSS), enhancing rapid and dynamic visual processing. Furthermore, the PCOM-B65A COM Express module provides (up to) 24x PCIe Gen4 lanes, 4x USB 3.2 Gen 2, and 2x SATA. The extensive and flexible I/O expansion along with high-performance computing featuring dedicated AI acceleration capability cross the CPU, GPU and NPU architectures, make the Portwell PCOM-B65A COM Express Type 6 module suitable for a broad range of embedded applications across various industries from AI edge computing to mission critical use cases, such as medical devices, intelligent healthcare, industrial control, factory automation and smart city.

General

Model Name	PCOM-B65A	
Form Factor	COM Express Type 6 Basic Size (125 X 95mm)	
CPU Series	Intel® Core™ Ultra U series	Intel® Core™ Ultra H series
Cores P+E/Threads	Up to 2P + 8E/12T	Up to 6P + 8E/20T
Frequency	2.3 GHz	3.0~3.2 GHz
Turbo Frequency	Up to 4.4 GHz	Up to 5.1 GHz
Intel® Smart Cache	Up to 12 MB	Up to 24 MB
Intel® Gfx EU	Up to 64 EU	Up to 128 EU
Graphics Max Freq.	Up to 1.70 GHz	Up to 2.35 GHz
Processor TDP (Up / Nominal / Down)	15W	28W / 45W
PCH	SoC	
Memory Type/Speed	DDR5 SO-DIMM up to 96GB 5600MT/s	
ECC Memory Support	Non-ECC SO-DIMM	

I/O Interface

SATA		4x SATA III (2x SATA shared with PCIe lane)	
USB		4x USB 3.2 Gen2 8x USB 2.0	
Ethernet		Intel® I226 series	
Serial I/O	GPIO	8 bit GPIO (default 4 input/4 output)	
	I²C	Baud Rate：400KHz	
	SMBus	Baud Rate：100KHz	
	UART	TX/RX signal only	
PCI Express		2x Gen4 x4	
Display	Module display interface	Carrier output options	Resolution
	eDP / LVDS (default eDP)	eDP up to HBR3	3840 x 2160@120Hz
		LVDS (24bit, dual-channel)	1920 x 1200@60Hz
	DDI	DP up to HBR3	3840 x 2160@120Hz
		HDMI 2.1	3840 x 2160@120Hz
	VGA	VGA	1920 x 1200@60Hz
Security		TPM 2.0	

† Intel® Arc™ GPU only available on select H-Series, Intel® Core™ Ultra processor powered systems with at least 16GB of system memory in a dual-channel configuration.

*All information provided is subject to change without notice. Last updated: December 21, 2023

PCOM-B65A

MECHANICAL & ENVIRONMENT

Dimension	125 x 95mm
Power DC IN	Normal: +12V DC AT/ATX mode
Storage Temperature	-40°C to 85°C
Operating Temperature	0°C to 60°C
Certification	Contact us
MTBF	TBD
Vibration	TBD
OS	Windows 10/11 Ubuntu

ORDERING GUIDE

Product	Ordering P/N	Status
PCOM-B65A-185H	In Process	In Development
PCOM-B65A-165H	In Process	In Development
PCOM-B65A-155H	In Process	In Development
PCOM-B65A-135H	In Process	In Development
PCOM-B65A-125H	In Process	In Development
PCOM-B65A-100U	In Process	In Development

Accessory	Ordering P/N	Status
Cooler (Heatpipe)	In Process	In Development
Heatsink (Heatpipe)	In Process	In Development
Heatspreader (Heatpipe)	In Process	In Development
PCOM-C605R Mini-ITX Carrier	AB1-3P78	Available
PCOM-C60B ATX Evaluation Carrier	AB1-3G22	Available

BLOCK DIAGRAM

PCOM-B65A

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