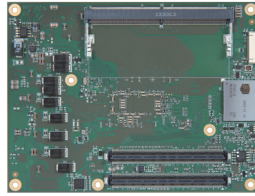
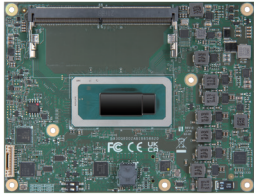


PCOM-B658VGL

COM Express Type6 Basic size module with Intel® 12th / 13th Gen H/P/U Processor
DDR5 SO-DIMM, DDI, PCIe Gen 4, USB 3.2 Gen2, 2.5Gb Ethernet, discrete TPM 2.0, eDP, SATA



FEATURES

- 12th / 13th Gen Intel® Core™ ,Celeron® Series processors in Intel® 7 lithography
- Up to 6x performance core +8x efficient core, and up to 96x graphic execution units
- 2x DDR5-4800 non-ECC SO-DIMMs up to 64GB, 1x PCIe Gen4 x8(H series), 2x Gen4 x4
- 4x USB3.2 Gen2, 2x SATA, 3x DDI, VGA, eDP/LVDS
- Options for Industrial Temperature Range -40°C up to +85°C
Options for onboard PCIe NVMe SSD



PCOM-B658VGL is COM Express module based on Intel® 12th / 13th Gen H/P/U platform. It is compatible with COM Express Rev3.1 standard. The platform adopts Intel 7 lithography and VNNI instruction set, offers advance computing power with 15~45W thermal and embedded use condition for wide range application. PCOM-B658VGL supports PCIe Gen4 lanes, and 2x Non-ECC DDR5 SO-DIMM, which is suit for mission critical use conditions and AI edge computing. This module also provides (up to) 7x PCIe Gen3 x1 lanes, 2x optional USB4(alternative with DDI), 4x USB 3.2 Gen 2, and 2x SATA III. The complete and flexible I/O capacity also mapped to wide range of embedded/industrial applications.

General

Product	PCOM-B658VGL		
Form Factor	COM Express Type6 Basic Size (125 X 95mm)		
CPU Series	H series	P series	U series
Cores P+E/Threads	Up to 6P + 8E/20T	Up to 6P + 8E/16T	Up to 2P + 8E/12T
Frequency	2.1 ~ 2.7 GHz	1.7 ~ 1.9 GHz	1.1 ~ 1.7 GHz
Turbo Frequency	Up to 5.0 GHz	Up to 4.8 GHz	Up to 4.9 GHz
Intel® Smart Cache	Up to 24 MB	Up to 24 MB	Up to 12 MB
Intel® Gfx EU	Up to 96 EU	Up to 96 EU	Up to 96 EU
Graphics Max Freq.	Up to 1.40 GHz	Up to 1.40 GHz	Up to 1.30 GHz
Processor TDP (Up / Nominal / Down)	65W / 45 W / 35 W	35W / 28 W / 20W	28W / 15 W / 12W
PCH	SoC		
Memory Type/Speed	DDR5 SO-DIMM up to 64GB 4800MT/s		
ECC Memory Support	Non-ECC SO-DIMM (Support IB ECC on industrial SKU)		

I/O Interface

SATA	2x SATA III share with PCIe lane		
USB	2x USB4 (option) 4x USB 3.2 Gen2 8x USB 2.0		
Ethernet	Intel® I226 series (Support TSN/TCC on industrial SKU)		
Serial I/O	GPIO	8 bit GPIO (default 4 input/4 output)	
	I ² C	Baud Rate: 400KHz	
	SMBus	Baud Rate: 100KHz	
	UART	TX/RX signal only	
PCI Express Gen4	1x Gen4 x8 (only H series), 2x Gen4 x4 (all series)		
PCI Express Gen3	7x Gen 3.0 x1 (2 lanes share with SATA)		
Storage	Up to 1TB onboard NVMe SSD (share with PCIe Gen4 x4 lanes)		
Display	Module display interface	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		

CPU SKU List

CPU Series	H series Embedded			H series Industrial		
	i7-13800HE	i5-13600HE	i3-13300HE	i7-13800HRE	i5-13600HRE	i3-13300HRE
Cores P+E/Threads	6P + 8E/20T	4P + 8E/16T	4P + 4E/12T	6P + 8E/20T	4P + 8E/16T	4P + 4E/12T
Frequency	2.5 GHz	2.7 GHz	2.1 GHz	2.5 GHz	2.7 GHz	2.1 GHz
Turbo Frequency	5.0 GHz	4.8 GHz	4.6 GHz	5.0 GHz	4.8 GHz	4.6 GHz
Intel® Smart Cache	24 MB	18 MB	12 MB	24 MB	18 MB	12 MB
Intel® Gfx EU	96 EU	80 EU	48 EU	96 EU	80 EU	48 EU
Graphics Max Freq.	1.40 GHz	1.40 GHz	1.30 GHz	1.40 GHz	1.40 GHz	1.30 GHz
Video Decode Boxes	2	2	1	2	2	1
Processor TDP (Up / Nominal / Down)	65W / 45 W / 35 W			65W / 45 W / 35 W		
IBECC	No			Yes		
TSN/TCC	No			Yes		
Support Temperature	0°C to 60°C			-40°C to 85°C		

CPU Series	P series Embedded				P series Industrial		
	i7-1370PE	i5-1350PE	i5-1340PE	i3-1320PE	i7-1370PRE	i5-1350PRE	i3-1320PRE
Cores P+E/Threads	6P + 8E/16T	4P + 8E/16T	4P + 8E/16T	4P + 4E/12T	6P + 8E/16T	4P + 8E/16T	4P + 4E/12T
Frequency	1.9 GHz	1.8 GHz	1.8 GHz	1.7 GHz	1.9 GHz	1.8 GHz	1.7 GHz
Turbo Frequency	4.8 GHz	4.6 GHz	4.5 GHz	4.5 GHz	4.8 GHz	4.6 GHz	4.5 GHz
Intel® Smart Cache	24 MB	12 MB	12 MB	12 MB	24 MB	12 MB	12 MB
Intel® Gfx EU	96 EU	80 EU	80 EU	48 EU	96 EU	80 EU	48 EU
Graphics Max Freq.	1.40 GHz	1.40 GHz	1.35 GHz	1.35 GHz	1.40 GHz	1.40 GHz	1.35 GHz
Video Decode Boxes	2	2	2	1	2	2	1
Processor TDP (Up / Nominal / Down)	35W / 28 W / 20W				35W / 28 W / 20W		
IBECC	No				Yes		
TSN/TCC	No				Yes		
Support Temperature	0°C to 60°C				-40°C to 85°C		

CPU Series	U series Embedded					U series Industrial		
	i7-1365UE	i5-1345UE	i5-1335UE	i3-1315UE	U300E	i7-1365URE	i5-1345URE	i3-1315URE
Cores P+E/Threads	2P + 8E/12T	2P + 8E/12T	2P + 8E/12T	2P + 4E/8T	1P + 4E/5T	2P + 8E/12T	2P + 8E/12T	2P + 4E/8T
Frequency	1.7 GHz	1.4 GHz	1.3 GHz	1.2 GHz	1.1 GHz	1.7 GHz	1.4 GHz	1.2 GHz
Turbo Frequency	4.9 GHz	4.6 GHz	4.5 GHz	4.5 GHz	4.3 GHz	4.9 GHz	4.6 GHz	4.5 GHz
Intel® Smart Cache	12 MB	12 MB	12 MB	10 MB	8 MB	12 MB	12 MB	10 MB
Intel® Gfx EU	96 EU	80 EU	80 EU	64 EU	48 EU	96 EU	80 EU	64 EU
Graphics Max Freq.	1.30 GHz	1.25 GHz	1.25 GHz	1.20 GHz	1.10 GHz	1.30 GHz	1.25 GHz	1.20 GHz
Video Decode Boxes	2	2	2	1	1	2	2	1
Processor TDP (Up / Nominal / Down)	28W / 15 W / 12W					28W / 15 W / 12W		
IBECC	No					Yes		
TSN/TCC	No					Yes		
Support Temperature	0°C to 60°C					-40°C to 85°C		

PCOM-B658VGL

MECHANICAL & ENVIRONMENT

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

ORDERING GUIDE

Product	Ordering P/N	Status
PCOM-B658VGL-13800HE	AB1-3R24	Available
PCOM-B658VGL-13600HE	AB1-3R52	Available
PCOM-B658VGL-13300HE	AB1-3R51	Available
PCOM-B658VGL-1370PE	AB1-3R50	Available
PCOM-B658VGL-1350PE	AB1-3R49	Available
PCOM-B658VGL-1340PE	AB1-3R63	Available
PCOM-B658VGL-1320PE	AB1-3R48	Available
PCOM-B658VGL-1365UE	AB1-3R47	Available

Product	Ordering P/N	Status
PCOM-B658VGL-1345UE	AB1-3R46	Available
PCOM-B658VGL-1335UE	AB1-3R64	Available
PCOM-B658VGL-1315UE	AB1-3R45	Available
PCOM-B658VGL-U300E	AB1-3R44	Available
PCOM-B658VGL-13800HRE	TBD	In Development
PCOM-B658VGL-13600HRE	TBD	In Development
PCOM-B658VGL-13300HRE	TBD	In Development
PCOM-B658VGL-1370PRE	TBD	In Development
PCOM-B658VGL-1350PRE	TBD	In Development
PCOM-B658VGL-1320PRE	TBD	In Development
PCOM-B658VGL-1365URE	TBD	In Development
PCOM-B658VGL-1345URE	TBD	In Development
PCOM-B658VGL-1315URE	TBD	In Development

Accessory	Ordering P/N	Status
Cooler (Heatpipe)	B9972160	Available
Heatsink (Heatpipe)	B830B940	Available
Heatspreader (Heatpipe)	B830B950	Available
PCOM-C605R Mini-ITX Carrier	AB1-3P78	Available
PCOM-C60B ATX Evaluation Carrier	AB1-3G22	Available

BLOCK DIAGRAM

PCOM-B658VGL

