



# SKS13

## COM EXPRESS TYPE 6 CARRIER BOARD



- COM Express Type 6 / 7 Support Up to 12th Alder Lake-H, 11th Tiger Lake-H, 9th Coffee Lake-H, 6/7th Kaby/Sky Lake-H (Type 6); Broadwell-DE D-1577/D-1559 (Type 7) Processor
- Standard MXM Type 3.1 Support NVIDIA® Quadro® and GeForce® GPUs
- PCI/104 Express Expansion Slot for Modular Open Structure
- Multi-Expansion Slots include Dual Mini PCIe Express Slots, 1 x M.2 Slot
- Extreme Temperature Support -40 to 85°C
- 2 x DP, 1 x LVDS, 4 x COM, 6 x USB, 2 x Mini PCIe, 1 x M.2, 2 x SATA
- 9~36V DC-IN

# Instructions

COM Express, a computer-on-module (COM) form factor, is a highly integrated and compact PC that can be used in a design application much like an integrated circuit component. The COM Express Module integrates core CPU and memory functionality, the common I/O of a PC/AT, USB, Audio, Graphics (PEG), and Ethernet. SK513 feature a range of Intel processors, up to the latest Intel Core series. SK513 are built to operate in harsh environmental conditions, the operating temperatures as low as -40°C to as hot as 85°C. From low power consumption to high performance processing power, SK513 are built to suit a wide range of computing applications from signal processing to unmanned vehicles and more.

# Specifications

## SYSTEM

	Intel® Core™ i7-12800HE 45W Alder Lake 12th Gen, 14C , Freq. 3.5 /4.6 GHz, 24MB cache
	Intel® Core™ i7-11850HE 45W Tiger Lake 11th Gen, 8C , Freq. 2.6 /4.7 GHz, 24MB cache
	Intel® Xeon® W-11865MLE 45W Coffee Lake 11th Gen, 8C , Freq. 1.5 /4.5 GHz, 12MB cache
	Intel® Xeon® E-2276ME 45W Coffee Lake 9th Gen, 6C , Freq. 2.8 /4.5 GHz, 12MB cache
COM Express CPU Options(Type 6)	Intel® Xeon® E-2276ML 25W Coffee Lake 9th Gen, 6C , Freq. 2.0 / 4.2 GHz, 12MB cache
	Intel® Core™ i7-9850HE 45W Coffee Lake 9th Gen, 6C, Freq. 2.7 / 4.4 GHz, 9MB cache
	Intel® Core™ i7-9850HL 25W Coffee Lake 9th Gen, 6C, Freq. 1.9 / 4.1 GHz, 9MB cache
	Intel® Core™ i7-7820EQ 45W Kaby Lake 7th Gen, 4C, Freq. 3.0 / 3.7 GHz, 8MB cache
	Intel® Xeon® E3-1505L v6 25W Sky Lake 6th Gen, 4C, Freq. 2.2 / 3.0 GHz, 8MB cache
COM Express CPU Options(Type 7)	Intel®Xeon®-D1577 45W Broadwell-DE, 16C, Freq. 1.3 / 2.1 GHz, 24MB cache Intel®Xeon®-D1559 45W Broadwell-DE, 16C, Freq. 1.5 / 2.1 GHz, 18MB cache (eTEMP)
GPU Module Options	NVIDIA® GeForce™ GTX 1050Ti, 60W, 4GB GDDR5, 768 CUDA Cores NVIDIA® GeForce™ RTX 2060S, 175W, 8GB GDDR6, 2176 CUDA Cores NVIDIA® Quadro™ RTX 5000, 150W, 16GB GDDR6, 3072 CUDA Cores NVIDIA® Quadro™ RTX 3000, 80W, 6GB GDDR6,1920 CUDA Cores

COM Express Compatibility	COM Express® Type 6/7
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## EXPANSION

MiniPCIe Expansion	2 x Full-size mini PCIe (1 with mSATA supported)
M.2 Expansion	1 x 2280 M-key (SATA only)
PCIe/104 Expansion	4 x PCIe x 1 、 1 x PCIe x 4 、 5 x USB 2.0 、 1 x LPC 、 1 x SPI
SATAIII	2 x SATAIII

## DISPLAY

Display Port	2 x Display Port outputs from COM Express®, 4 x outputs from GPU, 6 total
VGA	1 x output from COM Express®, 1 x output from GPU
LVDS	1 x dual channel 18/24bit LVDS
DVI	1

## Ethernet

Gigabit Ethernet	2 x 10/100/1000 Ethernet Ports
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## I/O

USB	4 x USB 3.0, 2 x USB 2.0
COM Port	4 x RS232/422/485
Audio	1 x Line-out, 1 x Mic-In

## Power System

Input Power_SYS	9~36V (4P Terminal Block)
Input Power_MXM	12V (ATX 4P)
Power Consumption	Varies per COM Express /MXM with different CPU and GPU models
RTC Battery	3V CR2032

## Mechanical and Environment

Dimensions	190mm x 185mm
Operating Temperature	-40 to 85°C
Storage Temperature	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

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**STANDARD COMPLIANCE**

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Standard Compliance	CE/FCC
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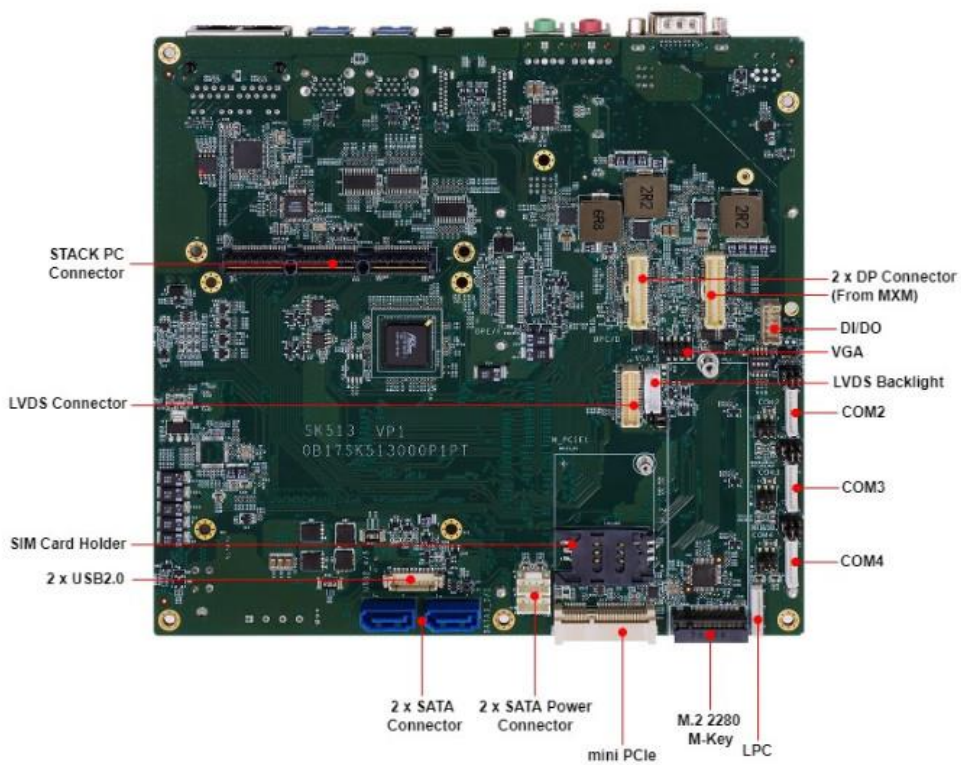
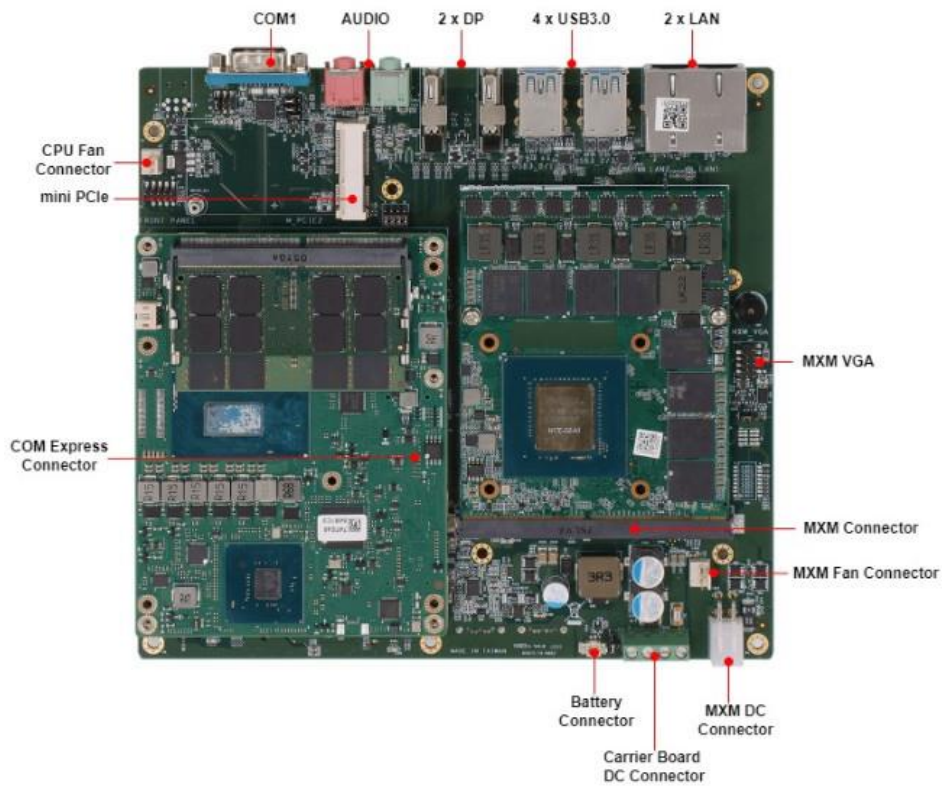
**OS**

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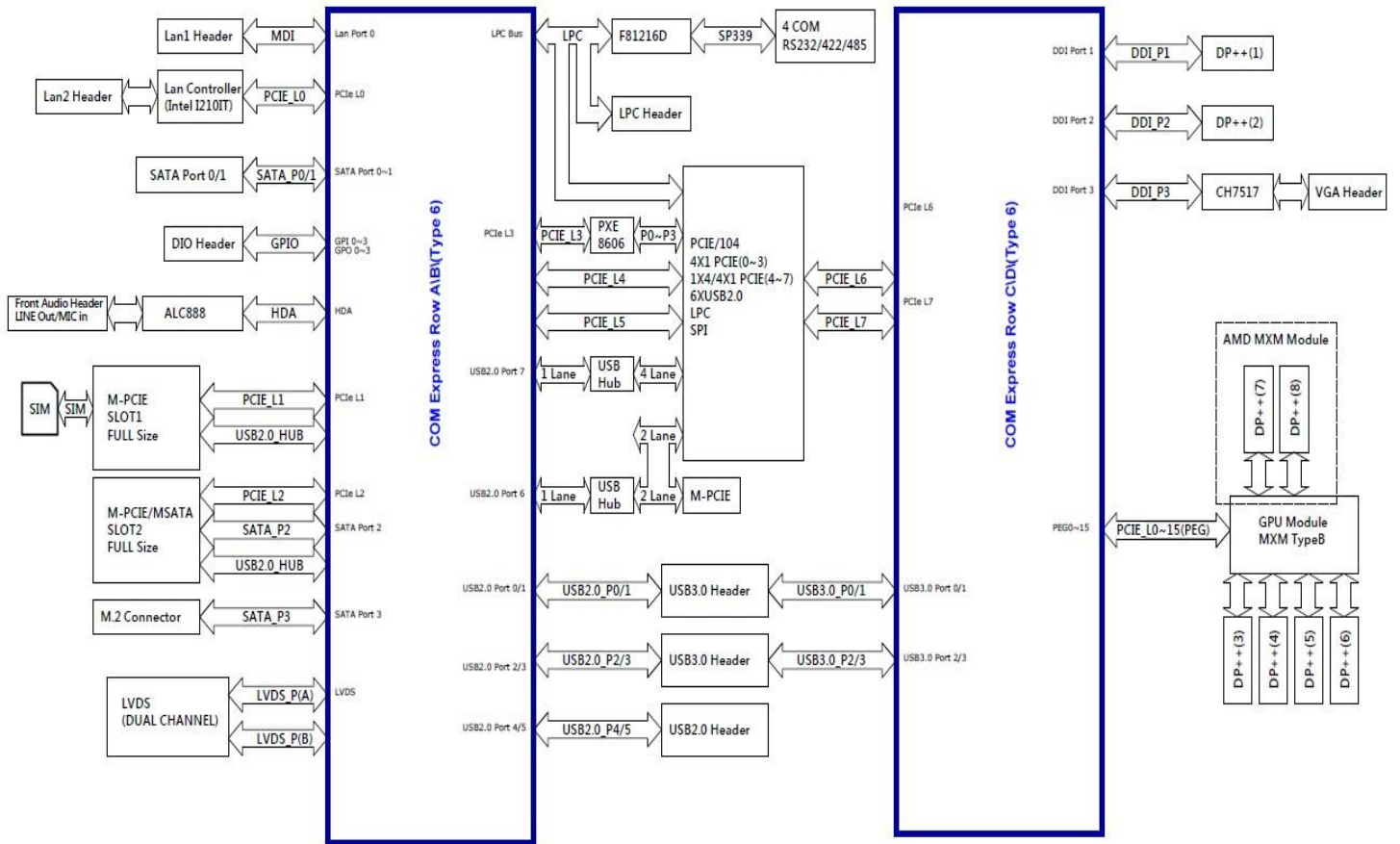
OS Support	Windows®10 64bit Linux(Support by request)
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# Carrier Board Placement



# Block Diagram



# Ordering Information

## CPU/GPU Table

All Operating Temperature meet from 0 to 55°C

Could Customize the Operating Temperature from -40 to 70°C

### CPU Products List

CPU(Type6)	SPEC	
Intel® Core™ i7-12800HE	45W	Alder Lake 12th Gen, 14C , Freq. 3.5 /4.6 GHz, 24MB cache
Intel® Core™ i7-11850HE	45W	Tiger Lake 11th Gen, 8C , Freq. 2.6 /4.7 GHz, 24MB cache
Intel® Xeon® W-11865MLE	25W	Tiger Lake 11th Gen, 8C , Freq. 1.5 /4.5 GHz, 12MB cache
Intel® Xeon® E-2276ME	45W	Coffee Lake 9th Gen, 6C ,2.8 /4.5 GHz, 12MB cache
Intel® Xeon® E-2276ML	25W	Coffee Lake 9th Gen, 6C ,2.0 / 4.2 GHz, 12MB cache
Intel® Core™ i7-9850HE	45W	Coffee Lake 9th Gen, 6C, 2.7 / 4.4 GHz, 9MB cache
Intel® Core™ i7-9850HL	25W	Coffee Lake 9th Gen, 6C, 1.9 / 4.1 GHz, 9MB cache
Intel® Core™ i7-7820EQ	45W	Kaby Lake 7th Gen, 4C, 3.0 / 3.7 GHz, 8MB cache
Intel® Xeon® E3-1505L v6	25W	Sky Lake 6th Gen, 4C, 2.2 / 3.0 GHz, 8MB cache

CPU(Type7)	SPEC	
Intel® Xeon®-D1577	45W	Broadwell-DE, 16C, 1.3 / 2.1 GHz, 24MB cache
Intel® Xeon®-D1559	25W	Broadwell-DE, 16C, 1.5 / 2.1 GHz, 18MB cache (eTEMP)

### GPU Products List

GPU	SPEC	
NVIDIA® GeForce™ GTX 1050Ti	60W	4GB GDDR5, 768 CUDA Cores
NVIDIA® GeForce™ RTX 2060S	175W	8GB GDDR6, 2176 CUDA Cores
NVIDIA® Quadro™ RTX 5000	150W	16GB GDDR6, 3072 CUDA Cores
NVIDIA® Quadro™ RTX 3000	80W	6GB GDDR6,1920 CUDA Cores