



MACHINE VISION COMPUTER

# VCO-6000-CFL-4M2

Machine Vision Computer with 9th Gen Intel® Core™ Processor, 4x Hotswap M.2 NVMe



## Features

- Support 9th Gen. Intel® CFL-R S Processor (LGA 1151, 35W TDP)
- Intel® Q370 chipset
- 2x DDR4 2400/2666Hz SODIMM. Max. up to 64GB
- Triple Independent Display by 1x DVI-I and 2x DisplayPort
- 2x Intel® GbE supporting Wake-on-LAN and PXE
- 2x Full-size mini PCIe (shared by 1x mSATA), 1x PCIe x16, and 4x M.2 (x8), 2x SIM socket
- 4x 2.5" SATA HDD bay with RAID 0, 1, 5, 10 support, 1x mSATA (shared by 1x Mini PCIe)
- 1x M.2 (M Key, NVMe PCIe x4, 2280); 1x M.2 (E Key, PCIe x2, 2230, USB 2.0, Support CNVi)
- 4x RS-232/422/485 (w/ 2x internal), 4x USB 3.1 Gen 2 (10Gbps)
- 8x DI + 8x DO with isolation
- 9 to 48VDC Wide Range Power Input Supporting AT/ATX Mode
- Wide Operating Temperature (-25°C to 60°C)
- TPM 2.0 Supported

## Specifications

System	
Processor	Support 9th Gen Intel® Core™ CFL-R S Processor (LGA 1151, 35W TDP) - Intel® Core™ i7-9700TE, 8 Cores, 12MB cache, up to 3.8 GHz - Intel® Core™ i5-9500TE, 6 Cores, 9MB Cache, up to 3.6 GHz - Intel® Core™ i3-9100TE, 4 Core, 6MB Cache, 3.2 GHz
System Chipset	Intel® Q370 Express Chipset
LAN Chipset	GbE1: Intel I219LM (Support Wake-on-LAN and PXE) GbE2: Intel I210-AT (Support Wake-on-LAN and PXE)
Audio Codec	Realtek ALC888S
System Memory	2x 260-Pin DDR4 2400/2666MHz SODIMM. Max. up to 64GB
Graphics	Intel® UHD Graphics 610/630
BIOS	AMI 256Mbit SPI BIOS
Watchdog	Software Programmable Supports 1~255 sec. System Reset
TPM	TPM 2.0
Display	
Display Port	2x DP (support resolution 4096 x 2304)
DVI	1x DVI-I (support resolution 1920 x 1200)
Multiple Display	Triple Display
VGA	Yes (by optional split cable)
Storage	
M.2	1x M.2 (M Key, NVMe PCIe x4, 2280) 1x M.2 (E Key, PCIe x2, USB 2.0, 2230, Support CNVi)
mSATA	1x mSATA (shared by 1x Mini PCIe)
NVMe	4x M.2 PCIe x2, 2280 (hot-swappable)
SIM Socket	2x Internal SIM socket
SSD/HDD	2x Internal 2.5" SATA HDD Bay (support H=9mm) 2x Hotswap 2.5" SATA HDD Bay (support H=7mm), Support RAID 0, 1, 5, 10
Expansion	
Mini PCIe	2x Full-size Mini PCIe (1x Shared with mSATA)
PCIe	1x PCIe x16 (8-lane) for GPU Card 4x PCIe x2 for NVMe M.2
Card Dimension	312 (L) x 111.15 (H) mm
I/O	
COM	2x RS-232/422/485, 4x RS-232/422/485 (Internal)
DIO	8 in / 8 out (Isolated)
LAN	2x RJ45
Universal I/O Bracket	2x Universal I/O Bracket (By mini PCIe interface)
USB	4x USB 3.2 Gen 2 (10 Gbps) 5x USB 3.2 Gen 1 (5Gbps, Internal) 1x USB 3.0 header (Internal)
Others	4x WiFi Antenna Holes 1x Power Switch, 1x AT/ATX Switch 1x Remote Power On/Off 1x PC/Car Mode Switch, 1x Delay Time Switch 1x Removable CMOS Battery
Operating System	
Windows	Windows 10
Linux	Linux kernel 5.X
Power	
Power Adapter	Optional AC/DC 24V, 220W/ 280W Optional AC/DC 24V, 280W for GPU
Power Mode	AT, ATX
Power Supply Voltage	9 ~ 48 VDC

Power Connector	3-pin Terminal Block 4-pin 12V DC input as optional
Power Protection	Over-Voltage Protection (OVP) Over-Current Protection (OCP) Reverse Polarity Protection (RPP)
Environment	
Operating Temperature	-25°C to 60°C ( 35W CPU)
Storage Temperature	-30°C ~ 85°C
Relative Humidity	10% to 95% (non-condensing)
Certification	CE, FCC Class A, E-Mark, EMC Conformity with EN 50155, EN 50121-3-2
Vibration	3 Grms, 5 ~ 500 Hz, 0.5 hr/axis (SSD) 1 Grms, 5 ~ 500 Hz, 0.5 hr/axis (HDD)
Shock	20G, half-sine, 11 ms (SSD)
Physical	
Dimensions	157 (W) x 340 (D) x 240 (H) mm
Weights	9.5 kg
Construction	Extruded aluminum with heavy duty metal
Mounting Options	Wall Mount

\* For 8th/9th CPUs configured to run at 65W, operating temperatures will be limited to 60°C.

\*\* 65W CPUS may experience thermal throttling depending on extreme application workloads; this is also due to an increase in the physical CPU cores from the Intel silicon (up to 8 cores). Please note, this does not indicate system malfunction or problems in the fanless design. Please consult our embedded engineers for the best configuration to match your application requirements.

\*\*\* All specifications and photos are subject to change without notice.



## Available Models

Model No.	Description
VCO-6000-CFL-3E-4M2-P	AI Edge Inference Computer with 9th Gen Intel® Core™ Processor, 4x Hotswap M.2 NVMe, PCIe x16 (8-lane) for GPU card

## Optional Accessories

Model No.	Description
1-E09A22801	Adapter AC/DC 24V/11.67A 280W with 3pin Terminal Block Plug 5.0mm Pitch
1-E09A22102	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch
999930	Power Cord, 3-pin US Type, 180cm
1-TPCD00002	Power Cord, European Type, 180cm
1-TPCD00001	Power Cord, 3-pin UK Type, 180cm

## Packing List

- 1x VCO-6000-CFL-4M2 Machine Vision Computer
- 1x Utility DVD Driver
- 1x Wall Mount Kit
- 1x Accessory Kit
- 1x DVI to VGA Adapter

## Compliances and Standards

Shock	20G, half-sine, 11 ms (SSD) IEC60068-2-27:2008 Designed to comply with MIL-STD-810G Method 516.7 Procedure I
Vibration	3 Grms, 5 ~ 500 Hz, 0.5 hr/axis (SSD) 1 Grms, 5 ~ 500 Hz, 0.5 hr/axis (HDD) IEC60068-2-64:2008 Designed to comply with MIL-STD-810G Method 514.7 Procedure I
Operating Temperature	-25°C to 60°C ( 35W CPU) IEC60068-2-1:2007 (Cold test procedure) IEC60068-2-2:2007 (Dry heat test procedure) IEC60068-2-3:2007 (Damp heat, steady state, test procedure) IEC60068-2-14:2009 (Wide temperature range thermal shock)
EMI	<ul style="list-style-type: none"> <li>• FCC Class A (47 CFR part 15.109 and part 15.107)</li> <li>• CE</li> <li>• ICES-003</li> <li>• UKCA</li> </ul>

## Exports And Tariff Codes

ECCN	5A992.c
HTS	8471.50.0150
ScheduleB	84.71