CO-W121C/P1201 Series

21.5" TFT-LCD Open Frame Display Modular Panel PC with Intel® Elkhart Lake Atom® x6000E Series Processor

ALL-NEW OPEN FRAME PANEL PC

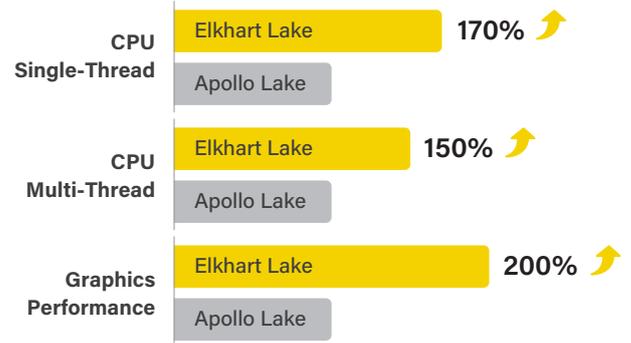| CO-100/P1000 Series Fits Any Machine Perfectly |

Overview

The CO-100/P1201 is an open-frame panel PC with an Intel® Atom® (Elkhart Lake) processor, rich native I/O interfaces (GbE LAN, USB 3.2, COM, and DIO), expansion slots (Mini PCIe and M.2 Key E Type 2230), and CFM (to add PoE and IGN). The major highlight, especially for equipment manufacturers, is the exclusive adjustable mounting bracket (patent pending) that provides thickness adjustment and two panel-locking methods that make installation more convenient and reduce the need for customization during integration. The design fits cabinets of different materials and thicknesses for consistency and its robust design takes into account the requirements of HMI in harsh industrial environments.

- 21.5" TFT-LCD with Projected Capacitive Touch
- Intel® Elkhart Lake Atom® x6425E/x6211E Processor
- 1x DDR4 SO-DIMM
- Designed with Adjustable Mounting Bracket
- Support Flat / Standard / VESA / Rack Mount
- Front Panel IP65 Compliant
- Wide Operating Temperature
- Cincoze Patent CDS Technology Support

Next-gen Performance

The CO-100/P1201 supports up to an Intel® Atom® x6425E (Elkhart Lake) 4-core processor, with 1.7 times the single-thread performance, 1.5 times the multi-thread performance, and double the graphics performance of the previous-generation Apollo Lake processor. Up to 32 GB of 3200 MHz DDR4 is supported.

CPU Single-Thread	Elkhart Lake	170%
	Apollo Lake	
CPU Multi-Thread	Elkhart Lake	150%
	Apollo Lake	
Graphics Performance	Elkhart Lake	200%
	Apollo Lake	

Patented CDS Technology

Convertible Display System (CDS), the patented technology that connects the CO-100 display module to the P1201 embedded computer, has the advantages of easy maintenance in the field and easy future upgrades because the screen size can be changed and performance can be improved by only replacing a single part, rather than the whole system, saving on upgrade costs.

Patent No. M482908

Easy to Install

The exclusive adjustable mounting bracket has flexible thickness adjustment and supports panel- and boss-type locking methods for industrial machines with flat mount or standard mount, making integration easier and more convenient.

Patent Pending

Integrated Structure

The flexible and reliable design of the open-frame architecture enables deployment in equipment machines, and after removing the mounting bracket can be installed directly using the VESA mount for standalone use, or installed in a 19" rack for display function.

Robust, Safe, Reliable

The CO-100/P1201 series has industrial-grade protections, including fanless design, wide operating temperature (0 to 70℃), wide-range DC power input (9 to 48 VDC), and IP65 front panel dust and water resistance, to face harsh and dangerous use environments such as field-side HMI applications.

0~70℃   9~48VDC   IP65

CO-W121C Specifications

Display	
LCD Size	▪ 21.5" (16:9)
Resolution	▪ 1920 x 1080
Brightness	▪ 300 cd/m2
Contract Ratio	▪ 5000 : 1
LCD Color	▪ 16.7M
Pixel Pitch	▪ 0.24825 (H) x 0.24825 (V) mm
Viewing Angle	▪ 178 (H) / 178 (V)
Backlight MTBF	▪ 50,000 hrs
Touch Screen	
Touchscreen Type	▪ Projected Capacitive Touch
Physical	
Dimension (W x D x H)	▪ 550 x 343.7 x 63.3
Weight	▪ 7.16 kg
Construction	▪ One-piece and Slim Bezel Design
Mounting Type	▪ Flat / Standard / VESA / Rack Mount
Mounting Bracket	▪ Pre-installed Mounting Bracket with Adjustable Design (Support 11 different stages of adjustment)
Protection	
Ingress Protection	▪ Front Panel IP65 Compliant * According to IEC60529
Environment	
Operating Temperature	▪ 0°C to 70°C
Storage Temperature	▪ -20°C to 70°C
Humidity	▪ 80% RH @ 40°C (non-condensing)
EMC	▪ CE, UKCA, FCC, ICES-003 Class A
Safety	▪ UL, cUL 62368-1 (Pending)

P1201 Specifications

Model Name	P1201
System	
Processor	▪ Intel® Atom® x6425E Processor (1.5M Cache, up to 3.00 GHz, 12W) ▪ Intel® Atom® x6211E Processor (1.5M Cache, up to 3.00 GHz, 6W)
Memory	▪ 1x DDR4 SO-DIMM Socket ▪ Supports DDR4 3200MHz Memory Up to 32GB (un-buffered and non-ECC)
BIOS	▪ AMI BIOS
Graphics	
Graphics Engine	▪ Integrated Intel® UHD Graphics
Maximum Display Output	▪ Supports Triple Independent Display
CDS	▪ 1x CDS Connector (1920 x 1080 @60Hz)
DP	▪ 1x DisplayPort Connector (4096 x 2304 @ 60Hz,According to CPU Specifications) * Verified maximum resolution: 3840 x 2160 @60Hz
VGA	▪ 1x VGA Connector (1920 x 1200 @60Hz)
Audio	
Audio Codec	▪ Realtek® ALC888, High Definition Audio
Line-out	▪ 1x Line-out, Phone Jack 3.5mm
Mic-in	▪ 1x Mic-in, Phone Jack 3.5mm
I/O	

LAN	▪ 2x 1GbE LAN, RJ45
	  - GbE1: Intel® I210
	  - GbE2: Intel® I210

COM	▪ 3x RS-232/422/485 with Auto Flow Control, DB9
USB	▪ 3x 10Gbps USB 3.2 Gen2, Type A ▪ 1x 480Mbps USB 2.0, Type A
DIO	▪ 8x Isolated DIO (4x DI/4x DO), 10-Pin Terminal Block
Storage	
SSD/HDD	▪ 1x 2.5" Front Accessible SATA HDD/SSD Drive Bay (SATA3.0)
mSATA	▪ 1x mSATA Socket (SATA 3.0, shared by Mini-PCIe socket)
Expansion	
Mini PCI Express	▪ 1x Full-size Mini-PCIe Socket
SIM Socket	▪ 1x SIM Socket
M.2	▪ 1x M.2 Key E Type 2230 Socket, Support Intel® CNVi/Wireless Module
CFM (Control Function Module) Interface	▪ 1x CFM IGN Interface for optional CFM-IGN Module Expansion ▪ 1x CFM PoE Interface for optional CFM-PoE Module Expansion
CDS (Convertible Display System) Interface	▪ 1x CDS Interface for Convertible Display Module
Other Function	
Clear CMOS Switch	▪ 1x Clear CMOS Switch
Reset Button	▪ 1x Reset Button

Instant Reboot	▪ Support 0.2sec Instant Reboot Technology
Watchdog Timer	▪ Software Programmable Supports 256 Levels System Reset
OSD Button	▪ LCD On/Off, Brightness Up, Brightness Down
Internal Speaker	▪ AMP 2W + 2W
Status LED Indicator	▪ Power LED, HDD LED, Temperature LED

Power

Power Button	▪ 1x ATX Power On/Off Button
Power Mode Switch	▪ 1x AT/ATX Mode Switch
Power Input	▪ 9 - 48VDC, 3-pin Terminal Block
Remote Power On/Off	▪ 1x Remote Power On/Off, 2-pin Terminal Block
Remote Power LED	▪ 1x Remote Power LED, 2-pin Terminal Block

Operating System

Windows	▪ Windows® 10
Linux	▪ Supports by project

Physical

Dimension (W x D x H)	▪ 204.5 x 149 x 41.5 mm
Weight Information	▪ 1.54 kg
Mechanical Construction	▪ Extruded Aluminum with Heavy Duty Metal
Mounting	▪ Wall / VESA / CDS / DIN Rail
Physical Design	▪ Fanless Design ▪ Jumper-less Design

Reliability & Protection

Reverse Power Input Protection	▪ Yes
Over Voltage Protection	▪ Protection Range: 51~58V ▪ Protection Type: shut down operating voltage, re-power on at the preset level to recover
Over Current Protection	▪ 15A
CMOS Battery Backup	▪ SuperCap Integrated for CMOS Battery Maintenance-free Operation
MTBF	▪ 283,091 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3

Environment

Operating Temperature	▪ -40°C to 70°C
	  * PassMark BurnInTest: 100% CPU, 2D/3D Graphics (without thermal throttling)
	  * With extended temperature peripherals; Ambient with air flow
	  * According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14

Storage Temperature	▪ -40°C to 85°C
Relative Humidity	▪ 95%RH @ 70°C (non-Condensing)
Shock	▪ Operating, 50 Grms (w/ SSD, according to IEC60068-2-27)
Vibration	▪ Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64) ▪ Operating, 1 Grms, 10-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-6)
EMC	▪ CE, UKCA, FCC, ICES-003 Class A ▪ EN61000-6-4, EN61000-6-2 (24VDC Input Only)
Safety	▪ UL, cUL, CB, IEC/EN 62368-1

CO-W121C/P1201 External Layout

Front I/O

IGN Setting Switch
Reset Switch
Antenna
Power LED
HDD LED
Antenna

SIM Card Slot
Front Accessible 2.5" HDD Tray
AT/ATX Switch
Power On/Off
Clear CMOS

Rear I/O

USB 3.2 Gen2
DC IN
DisplayPort
Remote
Power On/Off

LAN1
LAN2
VGA
Remote
Power LED

Left I/O

Decrease Brightness
Antenna
USB 3.2 Gen2
GND

Temperature LED
LCD On/Off
COM1
COM2
Increase Brightness

Right I/O

Antenna
Mic-In

COM3
DIO
USB 2.0
Line Out

CO-W121C/P1201 Dimensions

12.9 · 524.2 · 44
1.4 · 24.6 · 22.38 · 476.64(Active Area) · 78.45(Outline)
320.1 · 268.11(Active Area) · 310.51(Bezel Opening) · 343.7(Outline) · 85.55 · 149
11.8 · 17.68 · 514.64(Bezel Opening) · 16.6
Sponge=2mm
550(Outline) · 32.45
159.85 · 204.5

100 · 75 · 9 · 4 · 75 · 100
330.7 · 260 · 160
130 · 260 · 390 · 520 · 535

NOTE:
1.A=8_M4 VESA Screw Hole(6mm Length Limits)
2.B=12_M5 Screw Hole(5mm Length Limits)
3.C=16_9x4 Oblong Hole
4.D=12_M4 Screw Hole

Unit: mm

Ordering Information

Available Models

Model No.	Description
CO-W121C-R10/P1201-X6425E-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Panel PC with Intel Atom x6425E Quad Core Processor
CO-W121C-R10/P1201-X6211E-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Panel PC with Intel Atom x6211E Dual Core Processor

Model Configuration

	CO-W121C	P1201-X6425E	P1201-X6211E
CO-W121C/P1201-X6425E	V	V	--
CO-W121C/P1201-X6211E	V	--	V

V : Compatible

Package Checklist

- CO-W121C/P1201 Series Panel PC x 1
- Power Terminal Block Connector (Female) x 1
- Thermal Pad (for CPU Thermal Block) x 1
- Screw Pack x 1
- DIO Terminal Block Connector (Female) x 1
- Remote Power On/Off Terminal Block Connector x 1

Optional Modules and Accessories

Model No.	Description
CFM-PoE02	CFM Module with PoE Control Function, Individual Port 25.5W
CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, 12V/24V Selectable (43 x 36 mm)
URM01	Universal 19" Rack Mount Kit for Industrial Panel PC & Industrial Monitor
GST60A12-CIN1	Adapter AC/DC 12V 5A 60W, GST60A12-CIN1, wide temp(-30°C ~ +70°C)
GST120A24-CIN	Adapter AC/DC 24V 5A 120W, GST120A24-CIN, wide temp (-30°C ~ +70°C), level VI