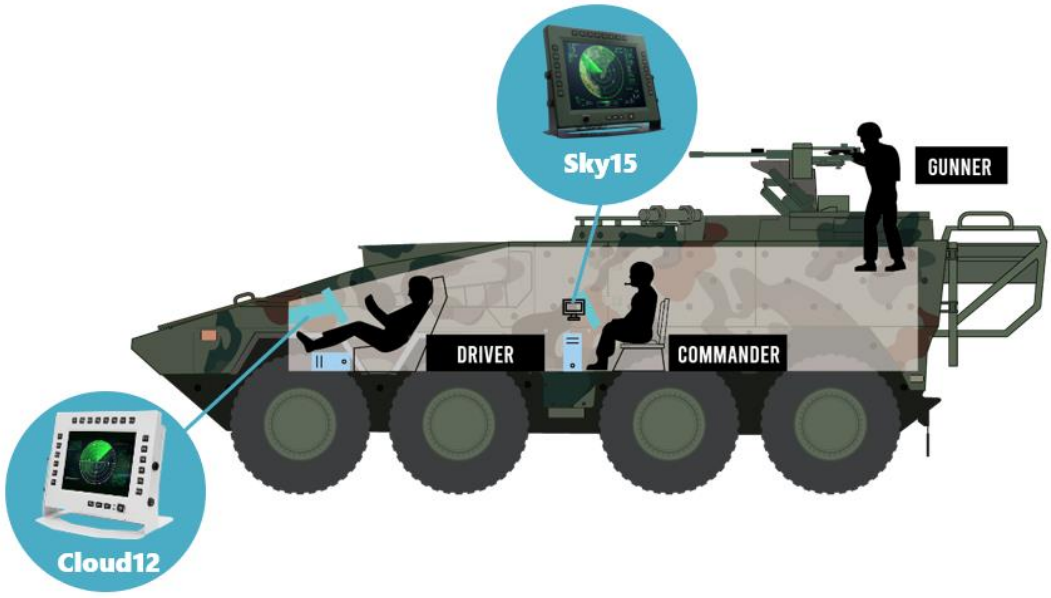
CLOUD12-P28

Dual vision Mode military Computer

- Intel® Xeon E3-1505L/E-2276ML
- NVIDIA GPU GTX1650 (CUDA 896,4GB GDDR)
- 1000 (up to 1300) ~ <1 % nits
- Sunlight Readable and NVIS supported
- 12" Glass-Film-Glass Touch panel
- 28 Programmable Function Keys
- Heavy-Duty fully IP65 Rugged aluminum
- MIL-DTL-38999 connectors
- MIL-STD 1275/461 18V~36V DC-DC
- Extended Temperature -40~+60 Degree

Content

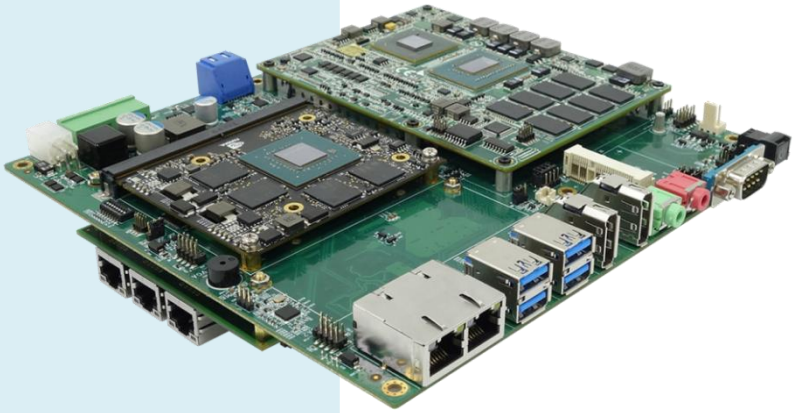


1. Edge AI Inference GPU System

Artificial intelligence (AI) is quickly becoming one of the most crucial components to business success now and in the foreseeable future. Today, the necessity of deploying powerful computing platforms that can accelerate and cost-effectively scale their AI-based products and services has become vital for successful enterprises.

7starlake ruggedized AI inference platform ensures CLOUD12-P28 operate in harsh environments. With SK515 COM Express Carrier board, CLOUD12-P28 features stunning inference performance, powerful Intel XEON CPU and PCIe/104 expansion capability. In addition, 7starlake's MXM GPU Module enables to combine with vast array of GPU from high performance GeForce GTX 10 series to pro design workstations Quadro series.

1-1 Modular, Open, Scalable Architecture – SK515 COM E T6 Platform



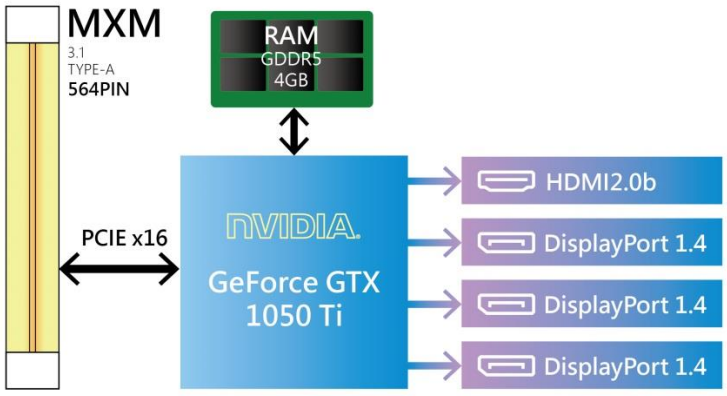
7starlake's SK515 based on modular, open, scalable architecture, which combines COM Express Type 6, MXM expansion slots and PCIe/104 expansion, features extremely scalable and stackable, ensuring high performance CPU and GPGPU processing capabilities. SK515 supports a range of Intel processors, up to the latest Intel XEON series. It can operate in harsh environmental conditions from -40°C to 85°C. From low power consumption to high performance processing power, SK515 are built to suit a wide range of computing applications from signal processing to unmanned vehicles and more.

COM E T6 Carrier board

7starlake's COM Express Carrier Boards are small feature rich, super flexible carrier boards that integrate with any industry standard Type 6 COM Express module. COM Express is the most versatile and most scalable COM standard. It's unique in that it may be used in two ways: as a single board computer and as a processor mezzanine that can be plugged onto a base board, or "carrier" board, that contains the user's application specific I/O. 7starlake's COM Express Type 6 carrier boards are ideal for compact and high performance computing applications in industrial, military/aerospace and transportation fields.

MXM GPU Module

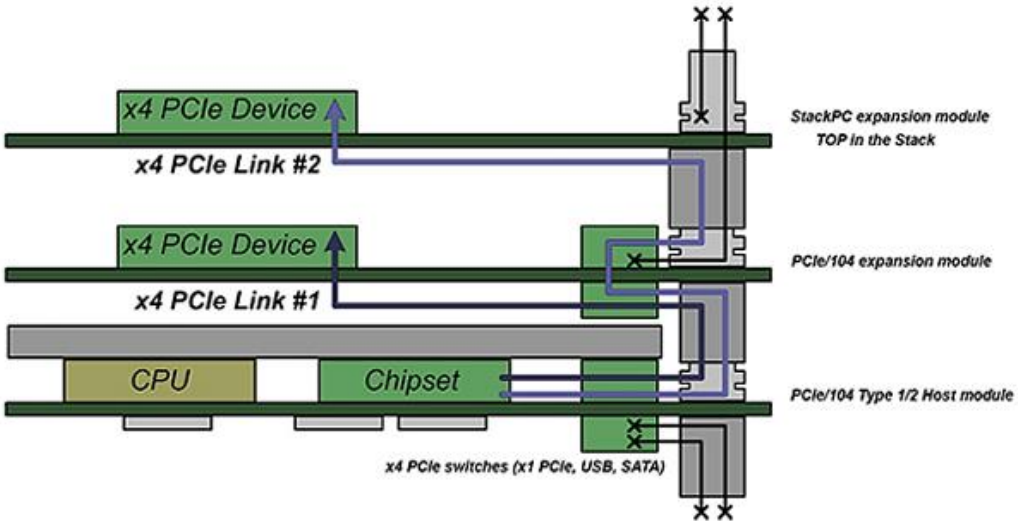
Based on the industrial standard Mobile PCI Express Module (MXM) Version 3.1 specification, 7starlake's MXM modules are the compact, thinnest graphics module solution, delivering the latest and cutting-edge GPU benefits for your embedded systems. It features the most scalability and upgradability for GPGPU computing performance and rigorous data processing capabilities. 7starlake's MXM GPU Modules are the ideal solution for performance demanding systems such as AI computing, defense applications and medical image.



82mm (L) x 70mm (H)

PCIe/104

A PCI-104 board with only the PCI Express connector is called PCIe/104. The purpose of PCIe/104 is to provide a System level Stack-Up Only approach. Specification adopts PCI-Express, Ethernet, SATA, USB as well as LPC, SPI, Field Buses and Common Power Connector to the any stacked architecture. 7starlake's PCIe/104 MXM Carrier brings many advantages, including fast data transfer, low cost and high reliability. The rugged modules are optimized for mission-critical, harsh environments where failure caused by sudden shock or unpredictable vibration is not an option.

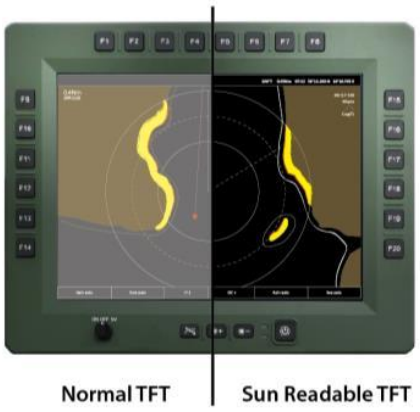


1-2 Dual Vision Mode

Operating in outdoor or hazardous environments can pose many challenges, whether there are blistering hot or freezing cold temperatures, high exposure to dust and water, or potentially explosive atmospheres. In the battle field, For soldiers, it's very important to clearly visualize their targets under these kinds of situations, thus, intelligent rugged display is needed.

7STARLAKE Cloud12-P28 ruggedized panel computer equipped dual LED backlight control systems, can support sunlight readable high bright and exceptional low nits readable with night vision goggles. By switching the 3-position hardware key, the operator can select standard mode or night vision mode in case of misuse and damage night vision optical devices.

Sunlight Readable Up to 1400 nits



CLOUD12-P28 ruggedized smart display can support sunlight-readable to meet high ambient light conditions such as direct sunlight, it also adopt our excellent optic bonding technical process, when bonded together the light passes through the bonded layers and is absorbed somewhat into the screen. Optical bonding is therefore important in making screens sunlight readable.

Night Vision Mode Support

When system at night mode, the operator can adjust brightness by hard key to turn it from 1000 nits to 1.7 nits or other customized night vision mode immediately, and the display gets ready at low brightness right away once its trigger and protect the usage of night vision devices at once.

2. High Performance Supercomputing CPU&GPU

2.1 Intel® Xeon Processors:

The Intel Xeon processors are definitely power processors. They are practically built for workstation computers. The large number of cores and advanced RAM functions give it enough processing power and speed to handle the most intensive creative applications, from computer-aided design (CAD) to 4K video editing to 3D rendering. Intel Xeon processors deliver essential performance and advanced security technologies for entry server solutions, professional workstations, and secure cloud services.

Driven by Intel® Xeon E3-1505L V5 (8M Cache, 2.80 GHz, 25W) or E-2276ML (8M Cache, 4.20 GHz, 25W) processor soldering onboard, CLOUD12-P28 is an ideal solution for both land and naval battle.

2.2 NVIDIA GeForce GTX 1050 Ti/ Quadro P3000:

Cloud12-P28 can install with NVIDIA GeForce GTX 1050Ti (768 CUDA, 4GB GDDR5) or Quardo P3000 (1280 CUDA, 4GB GDDR5). Based on Pascal GPU technology, it generates excellent resolution and supports high efficiency and fluency of image processing with low power consumption.

GeForce GTX 1050 Ti

GeForce GTX graphics cards are the most advanced ever created. Based on Pascal architecture, GeForce GTX 10 series built to meet the demands of next generation displays, including ultra-high-resolution and multiple monitors.

GTX 1050 Ti is a power efficient mainstream GPU based on the Pascal architecture. It features 768 CUDA cores, 4GB GDDR5 on-board memory and the power consumption of GTX 1050Ti is rated at 75W maximum. It's passmark G3D:6431.

Quadro P3000

From stunning industrial design to advanced special effects to complex scientific visualization, Quadro® is the world's preeminent visual computing platform. Quadro has the most advanced ecosystem of hardware, software and tools to transform the disruptive challenges of today into business successes of tomorrow.

Quadro P3000 is a mobile high-end workstation graphics card. It combines a Pascal GPU with 1280 CUDA cores, 6 GB GDDR5 on-board memory and the power consumption of the Quadro P3000 is rated at 75W maximum. It's passmark G3D:6312.

3. Introduction & Key Features

Introduction:

7STARLAKE Cloud12-P28 rugged mission-critical panel computer, retaining exceptional features of SKY series, with LCD super brightness up to 1300 nits and night vision (NVIS) under 1% nits, optical bonding of protective glass (GFG) touch screens, EMI filtering / EMI mesh shielding, and anti-reflection/anti-glare (AR/AG) coatings, possess also built-in CPU module w/ Intel Xeon E3-1505L v5 is a 64-bit quad-core x86 high-end quad-core processor and 28 programmable function keys . The rugged panel computer is designed with IP-65 waterproof and dust proof all-aluminum housings, supporting extended operating temperature range from -40 to 65°C and flexibly support extended DC power input range from 18V to 36V.

Description of Key Features:

(1) MIL-DTL 38999

Amphenol®

MIL-DTL-38999 is a high-performance cylindrical connector family designed to withstand the extreme shock, exposure and vibration that are commonplace in defense and aerospace applications. Made with removable crimp or fixed hermetic solder contacts, these connectors provide high-vibration characteristics and are suitable for severe wind and moisture problem areas.

(2) G.F.G. Resistive Touch Screen

GFG touch screens are operable with fingers, pens and gloves. The glass surfaces make the glass-film-glass sensor very durable and scratch resistant (7H).

(3) Soft Touch Buttons

CLOUD12-P28 equipped up to 28 programmable function keys, 3 OSD keys,1 triple knob, 1 power button by rubber-tooling made, each key pad dimension at 16 x 16 mm even the operator access function keys with wearing MOPP levels gloves.

(4) IP65 Certified

CLOUD12-P28 has complete resistance to dust and water; which is ruggedized and reliable for constrained military, ground army and defense.

(5) MIL-STD 810G Compliance

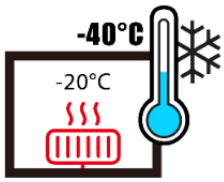
CLOUD12-P28 is rigorously field-tested to meet or exceed MIL-STD810G for extremely high & low temp, humidity, shock, and vibration.

(6) MIL-461/1275 EMI Filter

CLOUD12-P28 is designed with MIL-STD-1275/704, protecting against vehicle/aircrafts voltage surges, spikes and transients, and even electromagnetic interference. This characteristic is well suited for the strictest military requirement and deliver optimal performance in harsh conditions.

4. Optional Features

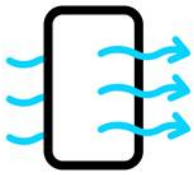
(1) Intelligent Heater



Due to consider boot up in extreme cold environment -40 degree, CLOUD12-P28 is designed with intelligent heater to control temperature automatically.

(2) Waterproof Valve

CLOUD12-P28 has completely waterproof to balance atmospheric pressure to meet different altitude environment.



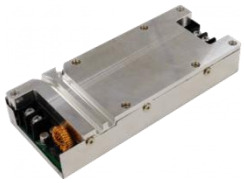
(3) EMI Shielding Cable Kits

Electromagnetic Interference (EMI) is prevalent throughout the anywhere. The main purpose of effective EMC Shielding is to prevent electromagnetic interference (EMI) or radio frequency interference (RFI) from impacting sensitive electronics. This is achieved by using a metallic screen to absorb the electromagnetic interference that is being transmitted through the air.

The shield effect is based on a principle used in a Faraday cage – the metallic screen completely surrounds either the sensitive electronics or the transmitting electronics. The screen absorbs the transmitted signals, and causes a current within the body of the screen. This current is absorbed by a ground connection, or a virtual ground plane. By absorbing these transmitted signals before they reach the sensitive circuitry, the protected signal is kept clean of electromagnetic interference, maximizing shielding effectiveness.

Figure : EMI Shielding Cable Kit

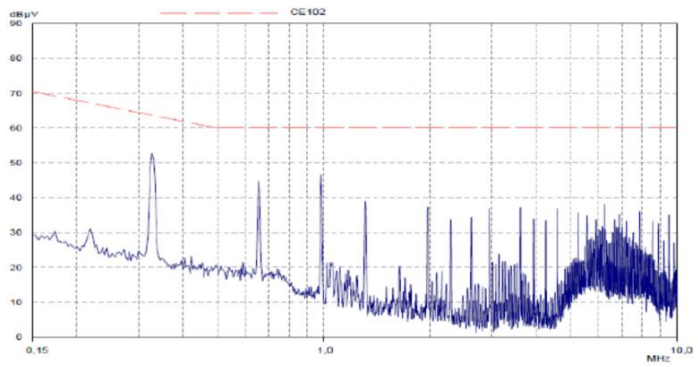
5. MIL-STD-1275/461



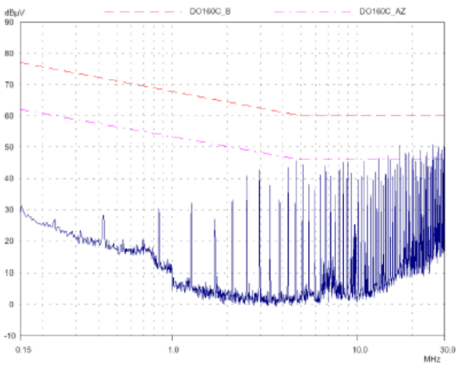
To enhance reliability, CLOUD12-P28 is designed for rugged extremes durable metal casing with an isolated MIL-STD-1275, MIL-STD 704 and DO-160 power supply in an IP50 (dustproof) ultra durable metal / aluminum chassis that protects against vehicle/aircraft voltage surges, spikes and transients is well suited for the strictest military requirement and deliver optimal performance in harsh conditions.

The GAIA Hi-Rel DC/DC CONVERTER it also provides Undervoltage Lockout (UVLO), Output Over Current Protection (OCP), Output Overvoltage Protection (OVP) and Over Temperature Protection (OTP) to made robust and safe to use.

Module Compliance with MIL-STD-461C/D/E Standards



MIL-STD-461E : MGDS-15x-H-J with FGDS-10A-50V



6. Specifications

12” TFT LCD Display & Resistor Touch screen

Resolution	1024x768 XGA	**Brightness**	1000 nits (up to 1300 Nits)
Aspect Ratio	4:3	**Contrast Ratio**	900
Touch Panel	Glass-Film-Glass 5-Wire resistor touch panel (Optional)		

System SPEC

CPU	Intel® Xeon E3-1505L V5 Processor (4C x 2/2.8 GHz), 8M Cache (25W)
Memory type	2 x SO-DIMM, supports Dual Channel DDR4 1866/2133 up to 32GB
Storage	1 x Full- Size (support PCIe/mSATA); 1 x Half-Size (support PCIe/mSATA)
Dual Mode	Day Mode, including: Ultra-Brightness 1300 nits Night Mode: NVIS (Dimmable under 1% Nits)
Function key	28 Soft Touch Buttons /w functional area selection buttons 1 for power button (On/Off)
DC-IN	18V ~ 36 V, 28Vdc Optional:12V~40V DC-IN (150W max) MIL-STD-461, MIL-STD-1275,

Connectors

DC-IN	Amphenol TV07RW-11-54P
IO Ports	X1:VGA+Audio (Amphenol TV07RW-13-35S);
	X2:DVI (Amphenol TV07RW-13-35S);
	X3:2xUSB (Amphenol TV07RW-13-98S)
	X4:
	LAN x 2, DVI x 1, USB x 1, COM x 2, DC-IN x 1

Applications

Applications	Marine, Naval, Ground and Airborne environment.

Physical

Dimension	310 x 280 x 90 mm (W x D x H)	**Weight**	9.53 Kg	**Finish**	Anodic aluminum oxide
Chassis	Aluminum Alloy, Corrosion Resistant	**Ingress Protection**	IP65 Dust /water Proof		

MIL Compliance

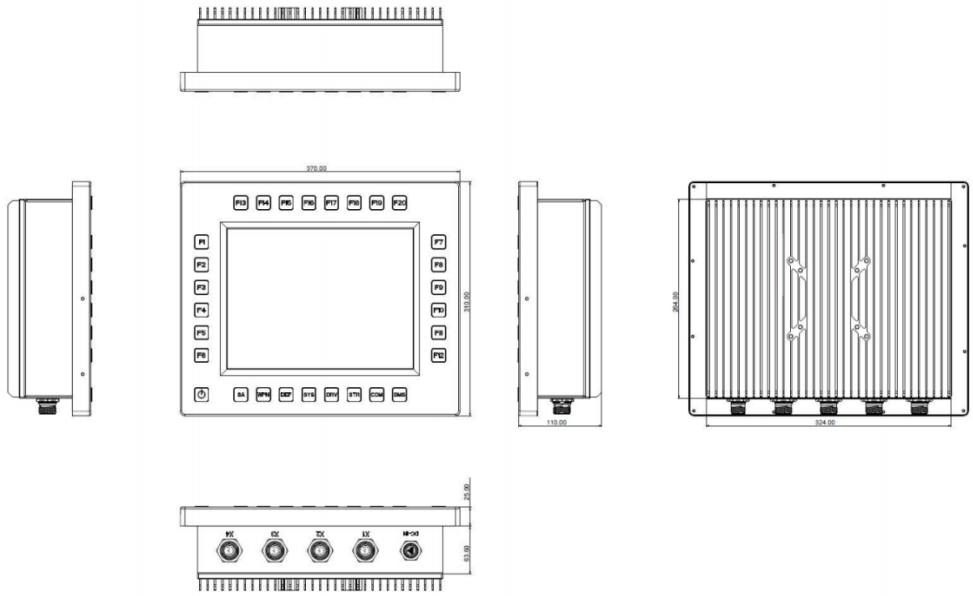
MIL-STD-810G (Operation Test)		
Low Temp.	Method 502.5 Procedure 2	Exposure(24h x 3 cycle) at -10℃ min.
High Temp.	Method 501.5 Procedure 2	60ºC for 2 hrs after temperature stabilization.
Humidity	Method 507.5 Procedure 2	RH -95%. Test cycles: ten 24-hrs , functional test after 5th and 10th cycles
Vibration	Method 514.6 Category 20	10-500Hz 1.04Grms Test duration: 1 hr x 3 axis (total 3 hrs)
Shock	Method 516.6 Procedure 1	20G, 11mSec, 3 per axis
MIL-STD-810G (Non-Operating Tests)		
Low Temp.	Method 502.5	Exposure(24h x 7 cycle) at -20℃ min.
High Temp.	Method 501.5 Procedure 1	71ºC for 2 hrs after temperature stabilization.
Vibration	Method 514.6 Category 24	200 to 2000Hz Test duration: 1hr per axis; rms = 7.7 gs
Shock	Method 516.6 Procedure 1	20G, 11mSec, 3 per axis

MIL-STD-461E	
CE102	Basic curve, 10kHz - 30 MHz
RE102-4, (1.5 MHz)	(1.5 MHz) -30 MHz - 5 GHz
RS103	1.5 MHz - 5 GHz, 50 V/m equal for all frequencies EN 61000-4-2: Air discharge: 8 kV,

Environmental Qualifications

Regulatory	CE , FCC Compliance
Operation Temp.	-40°C~65°C (ambient with air flow)
Storage Temp.	-40~+85 °C
Green Product	RoHS, WEEE compliance

7. Dimension



8. Ordering Information

12" Rugged Smart Display with MIL-DTL-38999 connectors, 28 user programmable function keys, NVIS supported

Model	Description
CLOUD12-P28	12" Rugged panel computer with 4 x MIL-DTL-38999 connectors, 28 Soft button /w programmable function keys, Night Vision Mode & Super High Brightness 1000 (up to 1300 Nits Support) , Operation Temperature -40~+65°C

7STARLAKE
2F., No.190, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 23146, Taiwan (R.O.C.)
Tel: 886-2-7744-7738
Fax: 886-2-8911-2324
Email: press@7starlake.com
https://7starlake.com/