ADLINK
Leading EDGE COMPUTING

ADLINK Edge AI Solutions

Deep Learning Acceleration Platforms Deliver the Optimal Mix of SWaP and AI Performance

- Heterogeneous CPU - GPU Platforms
- NVIDIA® Jetson™ - Enabled Edge AI Platforms
- Graphics Solutions

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About ADLINK

ADLINK Technology, a global provider of leading edge computing solutions, is an NVIDIA® Quadro® Embedded Partner, Jetson™ Elite Partner, and OEM Preferred Partner and a Premier Member of the Intel® IoT Solutions Alliance. With deep industry experience in embedded systems and edge applications, ADLINK has formulated a hardware optimization strategy to enable edge computing and edge artificial intelligence (AI) deployment with GPU-accelerated, heterogeneous computing platforms.

ADLINK is a global company with a local touch. Headquartered in Taiwan, ADLINK offers manufacturing in Taiwan and China; R&D and integration in the US, Germany, Taiwan, and China (Figure 1); an extensive network of worldwide sales and support offices; and a continually expanding partner ecosystem. ADLINK is ISO-9001, ISO-14001, ISO-13485, and TL9000 certified and is publicly traded on the TAIEX Taiwan Stock Exchange (stock code: 6166). Our products are currently available in over 40 countries across five continents and are supported by worldwide distribution networks and offices and more than 1,600 employees.

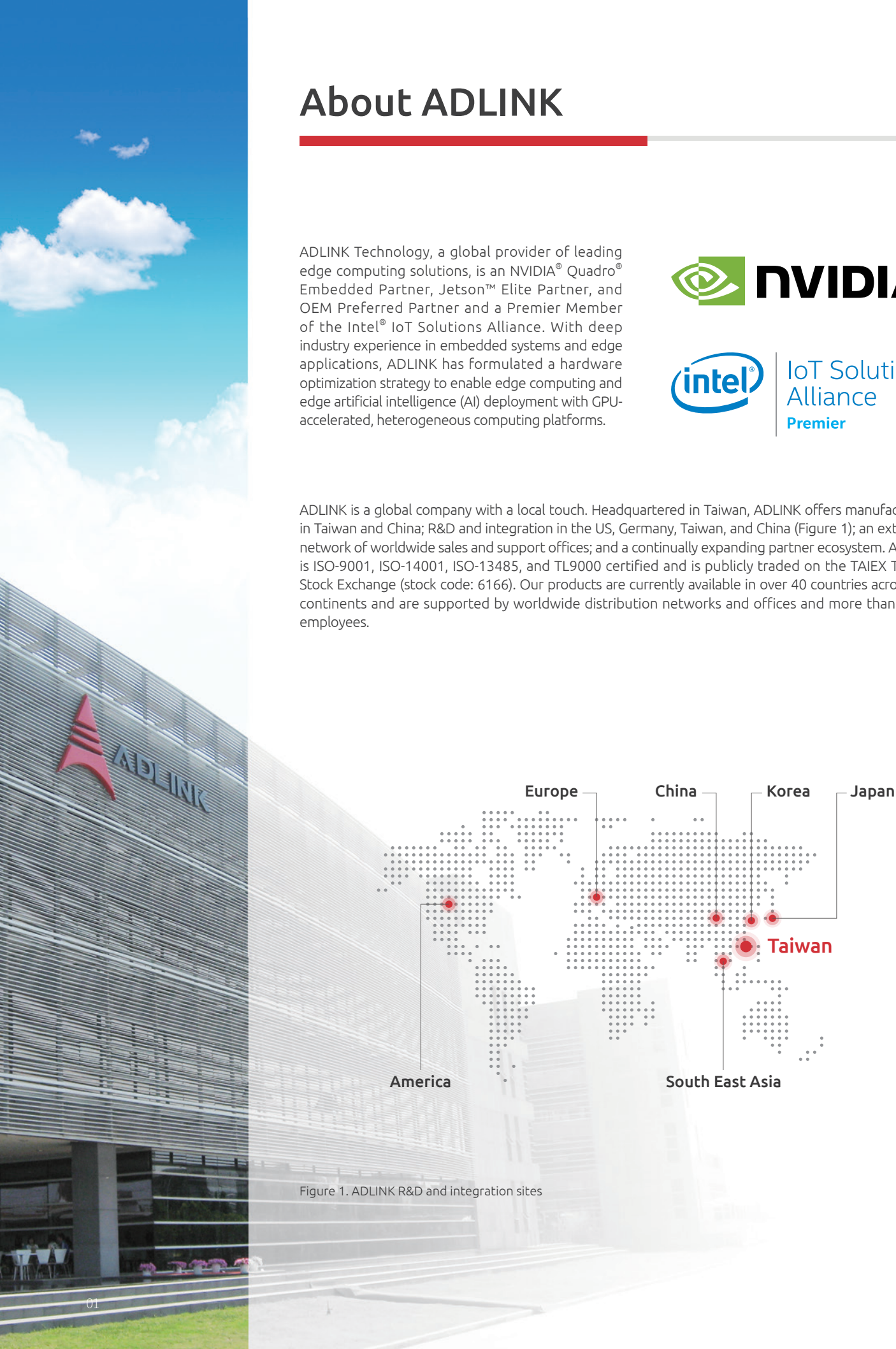

Figure 1. ADLINK R&D and integration sites

ADLINK Deep Learning Acceleration Platforms (DLAP) Deliver the Optimal Mix of SWaP and AI Performance

Powering AI in Edge Applications

There is growing demand to perform image rendering, image analysis, compute acceleration, and artificial intelligence (AI) in many embedded market segments, including healthcare, manufacturing, maritime, aerospace, transportation, and gaming. AI technologies will also enable machines to improve their own performance and make insightful decisions, as is needed for autonomous manufacturing in the move to Industry 4.0.

A trend in many industries is to transition from simple edge devices feeding data to the cloud for analysis to performing sophisticated inferencing and pattern-matching at the edge. Edge AI can respond faster than cloud AI by eliminating the need to send large data volumes to the cloud. Data security is also enhanced because less data is vulnerable to tampering as it is sent across networks. For mobile applications, edge AI reduces the reliance on unreliable network connections (i.e., dead zones, service outages) by performing AI functions locally.

Some AI computing solutions are heterogeneous, meaning they use graphics processing units (GPUs) to speed up parallel task processing and CPUs to manage large amounts of data and run statistical computations. Compared to homogeneous systems (with either CPU or CPU), heterogeneous systems typically have better system responsiveness, but they also present some significant design challenges:

- Power consumption: GPU + CPU consumes more power than GPU or CPU
- Form factor: GPU + CPU requires more space than GPU or CPU
- Product availability: Many GPUs have relatively short life spans

ADLINK DLAP Series

ADLINK's experienced design team overcomes these challenges with the Deep Learning Acceleration Platforms (DLAP) Series, a set of compact, industrial-grade, and size, weight, and power (SWaP)-optimized platforms for AI-based applications. The DLAP series is designed for durability in harsh industrial and embedded environments, operating at extended temperature, shock, and relative-humidity ranges. These systems are built with long lifecycle products, including GPUs, to significantly extend their availability.

The DLAP Series enables systems integrators, OEMs, and ODMs to lower development costs and shorten the time to market. Figure 1 shows the three categories of DLAP platforms, optimized for SWaP, AI processing, or both.

SWaP

Choose from four compact units that contain an NVIDIA® Jetson™ supercomputer on a module. They are well-suited for AI-based inferencing and machine vision, and in some cases, autonomous machine control.

SWaP-Performance Optimized

The DLAP 3000, 3100, and 3200 utilize Intel® Core™ processors and Mobile PCI Express Module (MXM) graphics cards to deliver compact, thermally-optimized, industrial designs with powerful inference capability.

High Performance

The DLAP 4000 and 8000 are designed to handle heavy AI workloads, built with a server-grade Intel® Xeon® processor or an Intel® Core™ processor, and one or two dual-slot NVIDIA® Quadro® based PCI Express Graphics (PEG) cards.

Customization Services

As an NVIDIA Quadro Embedded Partner, ADLINK can customize solutions for different embedded market segments, enabling customers to rapidly harness the power of AI at the edge. With long-term success in designing embedded modules, carrier boards, and systems, ADLINK can cater to individual projects by quickly developing edge AI platforms based on NVIDIA Quadro Embedded GPUs and Jetson modules.

High Performance

Application Examples	Models	Size (Liters)	CPU Options	GPU Performance (TFLOPS)	GPU Form Factors
▪ Object recognition for pick and place ▪ Edge servers 	DLAP-4000	9.9	Intel® Xeon® or Intel Core™ Processor	130.5 (FP32)	Full-Height, Full-Length PEG card
	DLAP-8000	15		>200 (FP32)	
▪ Mobile medical imaging ▪ Endoscopy systems 	DLAP-3000	3.2	Intel® Core™ Processor	75.2 (FP32)	MXM Type A/B/B+
	DLAP-3100	3.2			
	DLAP-3200	5.6			
▪ Machine vision ▪ Edge autonomous systems 	DLAP-201-JT2	0.8	NVIDIA® Jetson™ System on Module	1.5 (FP16)	NVIDIA® Jetson™ System on Module
	DLAP-211-JNX	0.9		6 (FP16)	
	DLAP-211-Nano	0.9		0.5 (FP16)	
	DLAP-301-JNX	2.0		6 (FP16)	
	DLAP-301-Nano	2.0		0.5 (FP16)	
	DLAP-401-Xavier	1.8		5.5-11 (FP16)	

Low SWaP

Figure 1. ADLINK DLAP Series

DLAP Series in Action ▸

Cashierless Cafeteria

An AI-based, cashierless checkout system scans all items on a customer's tray and requests contactless payment for the total amount in less than 1.5 seconds.

Mobile Medical Imaging

An all-in-one mobile C-ARM provides sharp, detailed medical images and maneuverability to doctors.

Deep-Learning Consultancy Services

ADLINK offers consultancy services via deep learning profiling to help users determine the right hardware platform to cost-effectively satisfy their performance and SWaP requirements. Taking into account the types of neural networks (e.g., AlexNet and MobileNet), batch size, and other inputs, ADLINK's profiling tool models the performance of computing platforms. The tool runs these inputs against a large database of AI and deep learning accelerators, and generates statistics, such as inferences per second; performance per watt; and performance per dollar, for popular neural networks.

Why ADLINK

The ADLINK DLAP Series gives system developers the flexibility they need to cost-effectively achieve the right mix of SWaP and AI performance. They can choose from a wide variety of CPUs, GPU modules and cards, form factors, and power consumption ranges to satisfy their specific application requirements. DLAP is designed for the embedded market, meaning the products are compact, industrial-grade, thermally-optimized, and supported with an extended lifecycle. With the DLAP series, there is no need to buy a server to run AI inferencing, facial recognition, object detection, or other AI-based applications at the edge.

Snow Plowing Vision

An AI-enabled vision system identifies living or inanimate objects in the road and alerts the snow plow driver before a collision may occur.

Sushi Express Checkout

An AI-enabled vision system monitors the sushi plates customers pick off a conveyer belt and presents them the bill for autopayment.

Logistics Automation

An AI-guided autonomous transport robot employs simultaneous localization and mapping (SLAM) and 3D pose estimations to navigate challenging logistics environments.

DLAP-3000-CF Series

Embedded System supporting MXM Graphics Module with 8th/9th Generation Intel® Core™ i7/i5/i3 in LGA1151 Socket

Features

- ADLINK MXM Graphics module support (Type A/B, up to 120W)
- 8th/9th Gen Intel® Core™ i7/i5/i3, Celeron® processor
- Dual SODIMMs for up to 64GB DDR4 non-ECC memory (dependent on CPU)
- DisplayPort (2 from CPU, 4 from MXM)
- 1x M.2 E key supporting 1630 or 2230 for Wi-Fi/Bluetooth module, 1x M.2 B key supporting 2242 or 2280 for SATA storage module
- Reliable Molex type 12V DC-in connector
- 1x Intel® i219-LM and 3x Intel® i210-AT

Software Support

- **Win10 IoT Enterprise SAC 64bit**
- **Ubuntu 18.04.1 LTS 64bit**

Optional Accessories

- **CPU cooler: 32-20495-0000**
- **CPU cooler bracket 32-50015-0100-A0**
- **MXM cooler for P1000/P2000: 32-20797-0200-A0**
- **MXM cooler for P3000/P5000: 32-20823-0020-A0**
- **MXM cooler for T1000: 32-20830-0200-A0**
- **MXM cooler for RTX3000: 32-20823-1100-A0**
- **12V/240W adaptor: 31-62164-0010-A0**
- **Wall Mount Bracket 34-34546-0000-A0 2pcs**
- **Wifi Kit INTEL AC9260 Non-VPRO 91-95266-0010**

Ordering Information

Model	MXM Support	Chipset	DC-in
DLAP-3000-CFP1	EGX-MXM-P1000	H310	12V
DLAP-3000-CFP2	EGX-MXM-P2000	H310	12V
DLAP-3000-CFP12	EGX-MXM-P1000/2000/ T1000/RTX3000 (not incl.)	H310	12V
DLAP-3000-CFP3	EGX-MXM-P3000	H310	12V
DLAP-3000-CFP5	EGX-MXM-P5000	H310	12V
DLAP-3000-CFP35	EGX-MXM-P3000/5000 (not incl.)	H310	12V
DLAP-3000-CFT1	EGX-MXM-T1000	H310	12V
DLAP-3000-CFT3	EGX-MXM-RTX3000	H310	12V

Specifications

Model	DLAP-3000-CFP1	DLAP-3000-CFP2	DLAP-3000-CFT1	DLAP-3000-CFT3	DLAP-3000-CFP3	DLAP-3000-CFP5
	DLAP-3000-CFP12*				DLAP-3000-CFP35*	
MXM Support	EGX-MXM-P1000	EGX-MXM-P2000	EGX-MXM-T1000	EGX-MXM-RTX3000	EGX-MXM-P3000	EGX-MXM-P5000
Processor	Intel® Core™ i7-9700E, 2.6GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i7-9700TE, 1.8GHz, 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i5-9500E, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i5-9500TE, 2.2GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-9100E, 3.1GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Core™ i3-9100TE, 2.2GHz, 6M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Core™ i7-8700, 3.2GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i7-8700T, 2.4GHz 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i5-8500, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i5-8500T, 2.1GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-8100, 3.6GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Celeron® G4900, 3.1GHz, 2M Cache, 54W TDP, LGA1151, DDR4 2400MHz support (2C/2T) Intel® Celeron® G4900T, 2.9GHz, 2M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (2C/2T)					
Chipset	Intel® H310 Chipset					
Memory	Non-ECC DDR4 2666/2400MHz, 2x SO-DIMM, up to 64GB (dependent on CPU)					
I/O Interfaces						
Display	6x DisplayPort (2 from CPU, 4 from MXM)					
Ethernet	1x GbE (Intel® i219-LM), 3x GbE (Intel® i210-AT)					
Serial Ports	1x RS-232/422/485, 1x RS-232					
USB	4x USB 3.1 Gen1 x1 ports, 4x USB 2.0 ports					
M.2	1x M.2 E key supporting 1630 or 2230 for Wi-Fi/BT module, 1x M.2 B key supporting 2242 or 2280 for SATA storage module					
Digital IO	Default: w/o DIO Optional: 1x DI/DO with 4 in, 4 out Note: Optional DIO, Audio and TPM 2.0 must be chosen together.					
Audio	Default: w/o Audio Option 1: Mic-in, Line-out, Line-in Option 2: Mic-in, L/R speaker-out (6W + 6W) Option 3: Line-in, L/R speaker-out (6W + 6W)					
TPM 2.0	Default: w/o TPM					
eSIM	Optional					
Storage						
SATA	2x 2.5" SATA 6Gb/s external drive bays 1x SATA 6Gb/s signal via M.2 B key connector					
Mechanical						
Dimensions	235 x 182 x 75mm (W x D x H, without foot pads)					
Mounting	Optional wall-mount bracket					
Power Supply						
DC Input	DC 12V input (Molex DC-in jack)					
AC Input	Optional: 240W (12V/20A) AC/DC adapter					
Environmental						
Operating Temperature	0°C to 50°C (W/MXM, W/SSD)					
Storage Temperature	-20°C to 60°C					
Humidity	5% to 95%, non-condensing					
EMC	EN55032/EN55035					
Safety	UL/cUL and CB					

***Note:** These models do not include an MXM graphics module.

DLAP-3100-CF Series

Embedded System supporting MXM Graphics Module with 8th/9th Generation Intel® Core™ i7/i5/i3 in LGA1151 Socket

Features

- ADLINK MXM Graphics module support (Type A/B, up to 120W)
- 8th/9th Gen Intel® Core™ i7/i5/i3, Celeron® processor
- Dual SODIMMs for up to 64GB DDR4 non-ECC memory (dependent on CPU)
- DisplayPort (2 from CPU, 4 from MXM)
- 1x M.2 E key supporting 1630 or 2230 for Wi-Fi/Bluetooth module,
  1x M.2 B key supporting 2242 or 2280 for SATA storage module
  1x M.2 M key supporting 2242 or 2280 for SATA/PCIe x4 storage module
- Reliable Molex type 12V DC-in connector
- 1x Intel® i219-LM) and 5x Intel® i210-AT

Software Support

- **Win10 IoT Enterprise SAC 64bit**
- **Ubuntu 18.04.1 LTS 64bit**

Optional Accessories

- **CPU cooler: 32-20495-0000**
- **CPU cooler bracket 32-50015-0100-A0**
- **MXM cooler for P1000/P2000: 32-20797-0200-A0**
- **MXM cooler for P3000/P5000: 32-20823-0020-A0**
- **MXM cooler for T1000: 32-20830-0200-A0**
- **MXM cooler for RTX3000: 32-20823-1100-A0**
- **12V/240W adaptor: 31-62164-0010-A0**
- **Wall Mount Bracket 34-34546-0000-A0 2pcs**
- **Wifi Kit INTEL AC9260 Non-VPRO**

Ordering Information

Model	MXM Support	Chipset	DC-in
DLAP-3100-CFP1	EGX-MXM-P1000	Q370	12V
DLAP-3100-CFP2	EGX-MXM-P2000	Q370	12V
DLAP-3100-CFP12	EGX-MXM-P1000/2000/ T1000/RTX3000 (not incl.)	Q370	12V
DLAP-3100-CFP3	EGX-MXM-P3000	Q370	12V
DLAP-3100-CFP5	EGX-MXM-P5000	Q370	12V
DLAP-3100-CFP35	EGX-MXM-P3000/5000 (not incl.)	Q370	12V
DLAP-3100-CFT1	EGX-MXM-T1000	Q370	12V
DLAP-3100-CFT3	EGX-MXM-RTX3000	Q370	12V

Specifications

Model	DLAP-3100-CFP1	DLAP-3100-CFP2	DLAP-3100-CFT1	DLAP-3100-CFT3	DLAP-3100-CFP3	DLAP-3100-CFP5
	DLAP-3100-CFP12*				DLAP-3100-CFP35*	
MXM Support	EGX-MXM-P1000	EGX-MXM-P2000	EGX-MXM-T1000	EGX-MXM-RTX3000	EGX-MXM-P3000	EGX-MXM-P5000
Processor	Intel® Core™ i7-9700E, 2.6GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i7-9700TE, 1.8GHz, 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i5-9500E, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i5-9500TE, 2.2GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-9100E, 3.1GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Core™ i3-9100TE, 2.2GHz, 6M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Core™ i7-8700, 3.2GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i7-8700T, 2.4GHz 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i5-8500, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i5-8500T, 2.1GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-8100, 3.6GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Celeron® G4900, 3.1GHz, 2M Cache, 54W TDP, LGA1151, DDR4 2400MHz support (2C/2T) Intel® Celeron® G4900T, 2.9GHz, 2M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (2C/2T)					
Chipset	Intel® Q370 Chipset					
Memory	Non-ECC DDR4 2666/2400MHz, 2x SO-DIMM, up to 64GB (dependent on CPU)					
I/O Interfaces						
Display	6x DisplayPort (2 from CPU, 4 from MXM)					
Ethernet	1x GbE (Intel® i219-LM), 5x GbE (Intel® i210-AT)					
Serial Ports	1x RS-232/422/485, 1x RS-232					
USB	6x USB 3.1 Gen1x1 ports, 2x USB 2.0 ports					
M.2	1x M.2 E key supporting 1630 or 2230 for Wi-Fi/Bluetooth module, 1x M.2 B key supporting 2242 or 2280 for SATA storage module 1x M.2 M key supporting 2242 or 2280 for SATA/PCIe x4 storage module					
Digital IO	1x DI/DO with 4 in, 4 out					
Audio	Mic-in, L/R speaker-out (6W + 6W)					
TPM 2.0	Yes					
eSIM	Optional					
Storage						
SATA	2x SATA 6Gb/s, one SATA power connector 2x SATA 6Gb/s signals via M.2 M & B key connector Intel® RST RAID Support					
Mechanical						
Dimensions	235 x 182 x 75mm (W x D x H, without foot pads)					
Mounting	Optional wall-mount bracket					
Power Supply						
DC Input	DC 12V input (Molex DC-in jack)					
AC Input	Optional: 240W (12V/20A) AC/DC adapter					
Environmental						
Operating Temperature	0°C to 50°C (W/MXM, W/SSD)					
Storage Temperature	-20°C to 60°C					
Humidity	5% to 95%, non-condensing					
EMC	EN55032/EN55035					
Safety	UL/cUL and CB					

***Note:** These models do not include an MXM graphics module.

DLAP-3200-CF Series

Embedded System supporting MXM Graphics Module with 8th/9th Generation Intel® Core™ i7/i5/i3 in LGA1151 Socket

Features

- ADLINK MXM Graphics module support (Type A/B, up to 120W)
- 8th/9th Gen Intel® Core™ i7/i5/i3, Celeron® processor
- Dual SODIMMs for up to 64GB DDR4 non-ECC memory (dependent on CPU)
- DisplayPort (2 from CPU, 4 from MXM)
- 1x M.2 E key supporting 1630 or 2230 for Wi-Fi/Bluetooth module, 1x M.2 B key supporting 2242 or 2280 for SATA storage module 1x M.2 M key supporting 2242 or 2280 for SATA/PCIe x4 storage module
- Reliable Molex type 12V DC-in connector
- 1x Intel® i219-LM and 3x Intel® i210-AT
- 2x PCIe Gen3 x4 expansion slot for Full Height Half Length add on card, each slot is 25W power budget and additiotal Molex 4 pin power cable (12V/1.5A and 5V/2A) support

Software Support

- **Win10 IoT Enterprise SAC 64bit**
- **Ubuntu 18.04.1 LTS 64bit**

Optional Accessories

- **CPU cooler: 32-20495-0000**
- **CPU cooler bracket 32-50015-0100-A0**
- **MXM cooler for P1000/P2000: 32-20797-0200-A0**
- **MXM cooler for P3000/P5000: 32-20823-0020-A0**
- **MXM cooler for T1000: 32-20830-0200-A0**
- **MXM cooler for RTX3000: 32-20823-1100-A0**
- **12V/240W adaptor: 31-62164-0010-A0**
- **Wall Mount Bracket 34-34546-0000-A0 2pcs**
- **Wifi Kit INTEL AC9260 Non-VPRO**

Ordering Information

Model	MXM Support	Chipset	DC-in
DLAP-3200-CFP1	EGX-MXM-P1000	Q370	12V
DLAP-3200-CFP2	EGX-MXM-P2000	Q370	12V
DLAP-3200-CFP12	EGX-MXM-P1000/2000/ T1000/RTX3000 (not incl.)	Q370	12V
DLAP-3200-CFP3	EGX-MXM-P3000	Q370	12V
DLAP-3200-CFP5	EGX-MXM-P5000	Q370	12V
DLAP-3200-CFP35	EGX-MXM-P3000/5000 (not incl.)	Q370	12V
DLAP-3200-CFT1	EGX-MXM-T1000	Q370	12V
DLAP-3200-CFT3	EGX-MXM-RTX3000	Q370	12V

Specifications

Model	DLAP-3200-CFP1	DLAP-3200-CFP2	DLAP-3200-CFT1	DLAP-3200-CFT3	DLAP-3200-CFP3	DLAP-3200-CFP5
	DLAP-3200-CFP12*				DLAP-3200-CFP35*	
MXM Support	EGX-MXM-P1000	EGX-MXM-P2000	EGX-MXM-T1000	EGX-MXM-RTX3000	EGX-MXM-P3000	EGX-MXM-P5000
Processor	Intel® Core™ i7-9700E, 2.6GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i7-9700TE, 1.8GHz, 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i5-9500E, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i5-9500TE, 2.2GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-9100E, 3.1GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Core™ i3-9100TE, 2.2GHz, 6M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Core™ i7-8700, 3.2GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i7-8700T, 2.4GHz 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i5-8500, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i5-8500T, 2.1GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-8100, 3.6GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Celeron® G4900, 3.1GHz, 2M Cache, 54W TDP, LGA1151, DDR4 2400MHz support (2C/2T) Intel® Celeron® G4900T, 2.9GHz, 2M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (2C/2T)					
Chipset	Intel® Q370 Chipset					
Memory	Non-ECC DDR4 2666/2400MHz, 2x SO-DIMM, up to 64GB (dependent on CPU)					
I/O Interfaces						
Display	6x DisplayPort (2 from CPU, 4 from MXM)					
Ethernet	1x GbE (Intel® i219-LM), 3x GbE (Intel® i210-AT)					
Serial Ports	1x RS-232/422/485, 1x RS-232					
USB	6x USB 3.1 Gen1x1 ports, 2x USB 2.0 ports					
M.2	1x M.2 E key supporting 1630 or 2230 for Wi-Fi/Bluetooth module, 1x M.2 B key supporting 2242 or 2280 for SATA storage module 1x M.2 M key supporting 2242 or 2280 for SATA/PCIe x4 storage module					
Digital IO	1x DI/DO with 4 in, 4 out					
Audio	Mic-in, L/R speaker-out (6W + 6W)					
TPM 2.0	Yes					
eSIM	Optional					
Expansion slot	2x PCIe Gen3 x4 expansion slot for Full Height Half Length add on card, each slot is 25W power budget and additiotal Molex 4 pin power cable (12V/1.5A and 5V/2A) support					
Storage						
SATA	2x SATA 6Gb/s, one SATA power connector 2x SATA 6Gb/s signals via M.2 M & B key connector Intel® RST RAID Support					
Mechanical						
Dimensions	235 x 182 x 130mm (W x D x H, without foot pads)					
Mounting	Optional wall-mount bracket					
Power Supply						
DC Input	DC 12V input (Molex DC-in jack)					
AC Input	Optional: 240W (12V/20A) AC/DC adapter					
Environmental						
Operating Temperature	0°C to 50°C (W/MXM, W/SSD)					
Storage Temperature	-20°C to 60°C					
Humidity	5% to 95%, non-condensing					
EMC	EN55032/EN55035					
Safety	UL/cUL and CB					

DLAP-4000 Series

Embedded System supporting FHFL dual-width PEG slot with 8th/9th Generation Intel® Core™ i7/i5/i3 in LGA1151 Socket

Features

- NVIDIA® Quadro® PEG card support
- 8th/9th Gen Intel® Core™ i7/i5/i3 processor
- Dual SODIMMs for up to 32GB DDR4 non-ECC memory (dependent on CPU)
- 1x DVI, 1x HDMI, 1x DP (from CPU), additional display outputs from PEG cards
- 1x Mini PCIe slot for Wi-Fi/Bluetooth or LTE module, 1x M.2 M key supporting 2280 SATA SSD module, 1x PCIe x16 slot for PEG card
- 300W/500W Flex ATX PSU

Software Support

- **Windows 10 IoT Enterprise CBB 64-bit**
- **Ubuntu 16.04 LTS**

Optional Accessories

- **3.5" SATA HDD, 2.5" SATA SSD/HDD, M.2 2280 SATA SSD**
- **Wireless Module**
  Wi-Fi/Bluetooth or 4G LTE wireless kit (w/ antenna)

Ordering Information

Model	CPU	Memory
DLAP-4001/M8G/[PEG]	Intel® Core™ i7-9700E	8GB non-ECC DDR4
DLAP-4002/M8G/[PEG]	Intel® Core™ i5-9500E	8GB non-ECC DDR4
DLAP-4003/M8G/[PEG]	Intel® Core™ i3-9100E	8GB non-ECC DDR4
DLAP-4004/M8G/[PEG]	Intel® Core™ i7-9700TE	8GB non-ECC DDR4
DLAP-4005/M8G/[PEG]	Intel® Core™ i5-9500TE	8GB non-ECC DDR4
DLAP-4006/M8G/[PEG]	Intel® Core™ i3-9100TE	8GB non-ECC DDR4
DLAP-4007/M8G/[PEG]	Intel® Core™ i7-8700	8GB non-ECC DDR4
DLAP-4008/M8G/[PEG]	Intel® Core™ i5-8500	8GB non-ECC DDR4
DLAP-4009/M8G/[PEG]	Intel® Core™ i3-8100	8GB non-ECC DDR4
DLAP-400A/M8G/[PEG]	Intel® Core™ i7-8700T	8GB non-ECC DDR4
DLAP-400B/M8G/[PEG]	Intel® Core™ i5-8500T	8GB non-ECC DDR4
DLAP-400C/M8G/[PEG]	Intel® Core™ i3-8100T	8GB non-ECC DDR4

PEG Card Options

PEG	Model	Power	CUDA® Cores	Graphics Memory
P2200	NVIDIA® Quadro® P2200	75W	1280	GDDR5 5GB
RTX4000	NVIDIA® Quadro® RTX 4000	160W	2304	GDDR6 8GB
RTX5000	NVIDIA® Quadro® RTX 5000	265W	3072	GDDR6 16GB
RTX6000	NVIDIA® Quadro® RTX 6000	295W	4608	GDDR6 24GB
RTX8000	NVIDIA® Quadro® RTX 8000	295W	4608	GDDR6 48 GB

Specifications

Model	DLAP-4000				
Processor	Intel® Core™ i7-9700E, 2.6GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i5-9500E, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-9100E, 3.1GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (4C/4T) Intel® Core™ i7-9700TE, 1.8GHz, 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (8C/8T) Intel® Core™ i5-9500TE, 2.2GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-9100TE, 2.2GHz, 6M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (4C/4T) Intel® Core™ i7-8700, 3.2GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i5-8500, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-8100, 3.6GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T) Intel® Core™ i7-8700T, 2.4GHz 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/12T) Intel® Core™ i5-8500T, 2.1GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T) Intel® Core™ i3-8100T, 3.1GHz, 6M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (4C/4T)				
Chipset	Intel® H310 Chipset				
Memory	Non-ECC DDR4 2666/2400MHz, 2x SO-DIMM, up to 32GB (dependent on CPU) system memory				
PEG Card Support	NVIDIA® Quadro® P2200	NVIDIA® Quadro® RTX 4000	NVIDIA® Quadro® RTX 5000	NVIDIA® Quadro® RTX 6000	NVIDIA® Quadro® RTX 8000
I/O Interfaces					
Display	1x DVI-D connector (rear), resolution up to 1920 x 1200 @ 60 Hz 1x DP connector (rear), resolution up to 4096 x 2304 @ 60 Hz 1x HDMI connector (rear) resolution up to 4096 x 2160 @ 30 Hz Additional display output from PEG cards				
Ethernet	2x GbE (Realtek RTL8111G)				
Serial Ports	1x RS-232/422/485, 4x RS-232				
USB	4x USB 3.1 Gen1 ports, 2x USB 2.0 ports				
DIO	1x 8-bit GPIO				
Mini PCIe	1x Mini PCIe slot (USB 2.0 and PCIe x1)				
M.2	1x M.2 M key (SATA 6Gb/s)				
Expansion Slot	1x PCIe x16 slot				
Audio	Mic-in, Line-out, Line-in				
TPM 2.0	Optional				
Storage					
2.5" SATA	2x 2.5" SATA 6Gb/s internal drive bays				
Mechanical					
Dimensions	220 x 300 x 150 mm (W x D x H)				
Power Supply					
AC Input	100 to 240 VAC				
Output Rating	300W	500W	500W	500W	500W
Environmental					
Operating Temperature	0°C to 50°C	0°C to 50°C	0°C to 40°C	0°C to 40°C	0°C to 40°C
Storage Temperature	-20°C to 60°C				
Humidity	5% to 90%, non-condensing				
Vibration	Operating: 1Grms, 5-500Hz, 3 axes (with 2.5" SSD and PEG card) Non-operating: 2Grms, 5-500Hz, 3 axes				
Shock	Operating: 20G, 11ms duration, half sine Non-operating: 30G, 11ms duration, half sine				
EMC	EN55032/35, EN61000-6-2/-4, CE, FCC Part 15B Class B				
Safety	UL/cUL, CB				

DLAP-8000 Series

9th Gen Intel® Xeon®, Core™ i7/i5/i3-Based Compact Industrial GPU Workstation

Features

- 9th Gen Intel® Xeon®, Core™ i7/i5/i3 LGA processors with workstation C246 chipset
- Dual SODIMMs for up to 64GB DDR4 / ECC options*
- Rich I/O: 2x DP++, 1x DVI-I, 3x GbE, 4x COM, 8-ch DI, 8-ch DO, TPM 2.0
- 2x USB 3.1 Gen2, 1x USB 3.1 Gen1, 3x USB 2.0
- Rich storage:
  - Up to 4 hot swappable 2.5" SATA 6 Gb/s tray with RAID 0/1/5/10 support, CFast, M.2 2280
- Embedded expansion: 1x Mini PCIe, 1x M.2 key B+M 2280/3042, 2x USIM
- Front accessible I/O and adaptive Function Module v.2 option
- Flexible and powerful PCIe expansions via backplane
  - 2x FHFL PCI Express cards (e.g. Quadro RTX 8000) accommodation w/ AUX power inlets
  - PCIe x8, x1, x4, x8, and x4 signals with physical x16, x4, x8, x16, and x8 slots
- Optional AC or DC SKUs in power inputs

*Available on Xeon/i3 SKUs

Software Support

- **Windows 10 IoT Enterprise CBB 64-bit**
- **Linux Ubuntu 18.04**

Optional Accessories

- **2.5" SSD, HDD, M.2, CFast Storage**
- **Wireless Module**
  Wi-Fi, BT, 3G, 4G LTE, wireless kit (w/ antenna)

Ordering Information

Model	CPU	Expansion Slots	2.5" SATA
DLAP-800X-DC /M16G	Intel® Xeon® E2278GE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4
DLAP-800X-AC/M16G	Intel® Xeon® E2278GE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4
DLAP-8001-DC/M8G	Intel® Core™ i7-9700TE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4
DLAP-8001-AC/M8G	Intel® Core™ i7-9700TE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4
DLAP-8002-DC/M8G	Intel® Core™ i5-9500TE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4
DLAP-8002-AC/M8G	Intel® Core™ i5-9500TE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4
DLAP-8003-DC/M8G	Intel® Core™ i3-9100TE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4
DLAP-8003-AC/M8G	Intel® Core™ i3-9100TE	2 PCIe x8 + 2 PCIe x4 + 1 PCIe x1	4

Specifications

Model	DLAP-800X	DLAP-8001	DLAP-8002	DLAP-8003
System Core				
Processor	Intel® Xeon® E-2278GE 80W	Intel® Core™ i7-9700TE 35W	Intel® Core™ i5-9500TE 35W	Intel® Core™ i3-9100TE 35W
Core #	8	8	6	4
Base Freq.	3.3 GHz	2.6 GHz	2.2 GHz	2.2 GHz
MAX Turbo Freq.	4.7 GHz	4.4 GHz	3.6 GHz	3.2 GHz
Chipset	Workstation Intel® C246			
Memory	4GB DDR4 2400MHz, dual SODIMMs, up to 64GB Optional: 8, 16, 32GB DDR4 ECC 2400MHz (Xeon® and i3 support ECC)			
Display	2x DP++ and 1x DVI-I			
I/O Interfaces				
Ethernet	3x Intel® GbE: 2x i211AT + 1x i219 iAMT support			
Serial Ports	COM1/2: RS-232/422/485, COM3/4: RS-232			
USB	2x USB 3.1 Gen 2 + 1x USB 3.1 Gen 1 + 3x USB 2.0, 1x internal USB 2.0 dongle			
Audio	Line-out, Mic-in (Optional: speaker-out)			
Mini PCIe	1x Full size (USB 2.0 + PCIe)			
M.2	1x socket, key B+M, 2280/3042: USB 3.1 Gen 1, SATA 6 Gb/s and PCIe x2			
USIM	2 (1 for Mini PCIe and 1 for M.2)			
DI/O	8-ch DI and 8-ch DO			
I^2C	2 (3.3V & 5V)			
TPM 2.0	Supported			
Expansion Slots	Physical: 2x PCIe x16, 2x PCIe x8, 1x PCIe x4; Signal: 2x PCIe x8, 2x PCIe x4, 1x PCIe x1			
Storage Devices				
2.5" SATA	4x external swappable trays (supports RAID 0, 1, 5, 10)			
CFast	1x Type II			
Mechanical				
Dimensions	210 (W) x 210 (D) x 350 (H) mm (8.27" x 8.27" x 13.8")			
Weight	7kg for PC sku, 10kg for AC sku			
Mounting	Wall mount			
Power Supply				
DC Input	24 Vdc			
AC Input	Optional AC SKU for 90-260 Vac			
Environmental				
Operating Temperature	Standard: 0°C to 50°C			
Storage Temperature	-40°C to 85°C (-40°F to 185°F) (excluding storage)			
Humidity	~95% @ 40°C (104°F) (non-condensing)			
Vibration	Operating: 3 Grms, 5-500 Hz, 3 axes (w/ SSD/CFast) Operating: 0.1 Grms, 5-500 Hz, 3 axes (w/ HDD)			
Shock	Operating: 30 Grms, half sine 11ms duration (w/ SSD/CFast)			
ESD	Contact ±4KV, Air ±8KV			
EMC	EN61000-6-4/-2, CE & FCC Class A			
Safety	UL/cUL, CB, CCC			

DLAP-201-JT2

NVIDIA® Jetson™ TX2 Edge Inference Platform

Features

- Deep learning acceleration with NVIDIA® Jetson™ TX2
- Compact fanless system 148(W)x105(D)x50(H)mm
- Wide temperature range from -20°C to 70°C

Specifications

	DLAP-201-JT2
System Core	
Processor	NVIDIA® Jetson™ TX2
Memory	8GB
eMMC	32GB
Graphic Output	
Graphic Output	1 HDMI 2.0 (w. lock)
Front Panel I/O Interface	
Ethernet	2x GbE
USB 3.0	3x Type A
Audio	Mic-in, line-out (Optional)
Rear Panel I/O Interface	
USB 2.0	1x OTG
Serial Port	1x COM
CAN Bus	1 CAN bus (2.0b)
Internal I/O Interface	
Mini PCIe	1x PCIe mini-card slot
USIM	1x USIM slot
DIO	4 channel DIO
Debug Port	1x debug console
Storage Device	
SATA Extension	mSATA
SD Card	1x SD
Power Requirements	
DC Input	12V
AC Input	Optional 60 W AC-DC adapter
Fail Reset	Reset/recovery button
Power LED Indicator	Power button
CMOS Battery	
Holder	BR2032
Protection	Reverse charge protection
Mechanical	
Antenna Hole	4 x SMA
Dimensions	148(W)x105(D)x50(H)mm
Weight	TBD
IP Grade	IP40
Mounting	Wall mount & VESA & din rail
Environmental	
Operating Temperature	Standard -20°C~70°C
Operating Humidity	~95% @40°C (non-condensing)
Storage Temperature	-40°C~85°C

DLAP-211-Nano

NVIDIA® Jetson Nano™ Edge Inference Platform

Features

- Deep learning acceleration with NVIDIA® Jetson Nano™
- Compact fanless system 148(W)x120(D)x49.1(H)mm
- Wide temperature range from -20°C to 70°C

Specifications

	DLAP-211-Nano
System Core	
Processor	NVIDIA® Jetson Nano™
Memory	4GB
eMMC	16GB
Graphic Output	
Graphic Output	1 HDMI 2.0 (w. lock)
Front Panel I/O Interface	
Ethernet	2x GbE
USB 3.0	4x Type A
Rear Panel I/O Interface	
USB 2.0	1x OTG
Serial Port	1x COM RS-232
Internal I/O Interface	
Mini PCIe	1x PCIe mini-card slot
M.2	M.2 B key 3042 socket
USIM	1x USIM slot
DIO	4 channel DIO
Debug Port	1x debug console
Storage Device	
SATA Extension	M.2 B key support SATA
SD Card	1x SD
Power Requirements	
DC Input	12V
AC Input	Optional 60 W AC-DC adapter
Fail Reset	Reset/recovery button
Power LED Indicator	Power button
Mechanical	
Antenna Hole	4 x SMA
Dimensions	148(W)x120(D)x49.1(H)mm
Weight	TBD
IP Grade	IP40
Mounting	Wall mount & VESA & din rail
Environmental	
Operating Temperature	Standard -20°C~70°C
Operating Humidity	~95% @40°C (non-condensing)
Storage Temperature	-40°C~85°C

DLAP-211-JNX

Jetson Xavier™ NX Edge Inference Platform

Features

- Deep learning acceleration with Jetson Xavier™ NX
- Compact fanless system 148(W)x120(D)x49.1(H)mm
- Wide temperature range from -20°C to 70°C

Specifications

	DLAP-211-JNX
System Core	
Processor	Jetson Xavier™ NX
Memory	8GB
eMMC	16GB
Graphic Output	
Graphic Output	1 HDMI 2.0 (w. lock)
Front Panel I/O Interface	
Ethernet	2x GbE
USB 3.0	4x Type A
Audio	Mic-in, line-out (Optional)
Rear Panel I/O Interface	
USB 2.0	1x OTG
Serial Port	1x COM RS-232
CAN Bus	1 CAN bus (2.0b)
Internal I/O Interface	
Mini PCIe	1x PCIe mini-card slot
M.2	M.2 B key 3042 socket
USIM	1x USIM slot
DIO	4 channel DIO
Debug Port	1x debug console
Storage Device	
SATA Extension	M.2 B key support SATA
SD Card	1x SD
Power Requirements	
DC Input	12V
AC Input	Optional 60 W AC-DC adapter
Fail Reset	Reset/recovery button
Power LED Indicator	Power button
Mechanical	
Antenna Hole	4 x SMA
Dimensions	148(W)x120(D)x49.1(H)mm
Weight	TBD
IP Grade	IP40
Mounting	Wall mount & VESA & din rail
Environmental	
Operating Temperature	Standard -20°C~70°C
Operating Humidity	~95% @40°C (non-condensing)
Storage Temperature	-40°C~85°C

DLAP-301-Nano

AI-enabled Embedded NVR Powered by NVIDIA® Jetson Nano™

Features

- NVIDIA® Jetson Nano™ processing/inference engine
  - Quad-core ARM® Cortex®-A57 MPCore processor
  - 128 NVIDIA CUDA® cores
- 8x PoE for IP cameras
- HDMI, 8-bit digital inputs/outputs, 2x COM, 3x USB, 1x GbE for uplink
- Easy to maintain 2.5" SATA storage
- 12V DC input, AC adapter, AC-DC board

Specifications

	DLAP-301-Nano
System Core	
Processor	NVIDIA® Jetson Nano™
Memory	4GB LPDDR4
eMMC	16GB eMMC 5.1
Graphic Output	
Graphic Output	1x HDMI 2.0
Front Panel I/O Interface	
USB 3.0	1x Type A
USB 2.0	OTG
Graphic Output	1 vertical HDMI connector
Rear Panel I/O Interface	
Ethernet	1x GbE
POE	8x PoE (15W each, 10/100 Ethernet)
USB 3.0	2x Type A
Serial Port	2x COM
DIO	4x input/ 4x output w/ 1.5KV isolation
Storage Device	
SATA Extention	2.5" SATA SSD
Power Requirements	
DC Input	12V DC input
AC Input	AC adapter AC-DC board
Fail Reset	Reset/recovery button
Power LED Indicator	Power Button
Mechanical	
Dimensions	210 x 170 x 55 (mm)
Weight	TBD
Mounting	Wall mount/ DIN-RAIL
Environmental	
Operating Temperature	Standard: 0°C ~ +50°C Extended: -20°C ~ +70°C
Operating Humidity	~95% @40°C (non-condensing)
Storage Temperature	-40°C ~ +85°C

DLAP-301-JNX

AI-enabled Embedded NVR Powered by NVIDIA® Jetson Xavier™ NX

Features

- NVIDIA® Jetson Xavier™ NX processing/inference engine
  - 6-core NVIDIA Carmel ARM® v8.2 64-bit CPU
  - 384-core NVIDIA Volta™ GPU with 48 Tensor Cores
- 8x PoE for IP cameras
- HDMI, 8-bit digital inputs/outputs, 2x COM, 3x USB, 1x GbE for uplink
- Easy to maintain 2.5” SATA storage
- 12V DC input, AC adapter, AC-DC board

Specifications

	DLAP-301-JNX
System Core	
Processor	NVIDIA® Jetson Xavier™ NX
Memory	8GB LPDDR4
eMMC	16GB eMMC 5.1
Graphic Output	
Graphic Output	1x HDMI 2.0
Front Panel I/O Interface	
USB 3.0	1x Type A
USB 2.0	OTG
Graphic Output	1 vertical HDMI connector
Rear Panel I/O Interface	
Ethernet	1x GbE
POE	8x PoE (15W each, 10/100 Ethernet)
USB 3.0	2x Type A
Serial Port	2x COM
DIO	4x input/ 4x output w/ 1.5KV isolation
Storage Device	
SATA Extention	2.5" SATA SSD
Power Requirements	
DC Input	12V DC input
AC Input	AC adapter AC-DC board
Fail Reset	Reset/recovery button
Power LED Indicator	Power Button
Mechanical	
Dimensions	210 x 170 x 55 (mm)
Weight	TBD
Mounting	Wall mount/ DIN-RAIL
Environmental	
Operating Temperature	-20°C ~ +70°C
Operating Humidity	~95% @40°C (non-condensing)
Storage Temperature	-40°C ~ +85°C

DLAP-401-Xavier

Edge AI platfom Powered by NVIDIA® Jetson AGX Xavier™

Features

- Deep learning acceleration with NVIDIA Jetson AGX Xavier
- Compact system 150(W) x 145(D) x 85(H) mm.
- 3x USB 3.1 Gen1 lockable type, 2 GLAN, 1 Type C USB 3.1 OTG
- Internal function expansions by M.2 E key 2230, M.2 B key 3042
- 24V DC input
- Additional storage by M.2 B key 2242

Specifications

	DLAP-401-Xavier
System Core	
Processor	NVIDIA® Jetson AGX Xavier™
Memory	Onboard 32GB
eMMC	32GB on module
Graphic Output	
Graphic Output	1x HDMI
Front Panel I/O Interface	
Ethernet	2x GbE
USB 3.1 Type C	1
CAN BUS	1 CAN bus (2.0b)
Side Panel I/O Interface	
USB 3.1 GEN1	3
Debug header	Reset, Recovery, power button, power mode switch (Default set as Auto Power On)
Storage Device	
eSATA	eSATA + USB connector on the side
M.2	M.2 B key 2242 for SATA SSD (optional 3042 to support LTE module)
Optional Interface	
M.2 Extension	M.2 E key 2230 for Wi-Fi
IMU	BMI160 (optional)
Power Requirements	
DC Input	24V
AC Input	Optional 160W adapter
Fail Reset	Recovery / Reset
Mechanical	
Dimensions	150mm x 145mm x 85mm
Weight	TBD
Mounting	Wall mount
SMA Antenna	2
Environmental	
Operating Temperature	0°C ~ +50°C
Operating Humidity	~95% @40°C (non-condensing, optional with fanless solution)
Storage Temperature	-40°C ~ +85°C

Graphics Solutions

MXM Modules

MXM GPU Modules with NVIDIA Turing™ Architecture

Model Name	EGX-MXM-T1000	EGX-MXM-RTX3000	EGX-MXM-RTX5000
			
Graphic Core			
GPU	Quadro® T1000	Quadro® RTX3000	Quadro® RTX5000
Memory	4GB GDDR6 memory, 128-bit, Bandwidth: 192 GB/s	6GB GDDR6 memory, 192-bit, Bandwidth: 336 GB/s	16GB GDDR6 memory, 256-bit, Bandwidth: 448 GB/s
GPGPU Computing			
CUDA Cores	896 CUDA® cores, 2.6 TFLOPS Peak FP32 performance	1920 CUDA® cores, 5.3 TFLOPS Peak FP32 performance	3072 CUDA® cores, 9.4 TFLOPS Peak FP32 performance
Tensor Cores	-	240 Tensor Cores	384 Tensor Cores
Compute API	CUDA Toolkit 8.0 and above, CUDA Compute version 6.1 and above, OpenCL™ 1.2		
Graphics API	Shader Model 5.1, OpenGL 4.6, DirectX® 12, Vulkan 1.0		
Display			
Display Outputs	4x DisplayPort 1.4a digital video outputs 4K at 120Hz or 8K at 60Hz	4x DisplayPort 1.4b digital video outputs 4K at 120Hz or 8K at 60Hz	
Interface	MXM 3.1, PCI Express 3.0 x16 support		
Mechanicals			
Dimensions	82 (W) x 70 (D) x 4.8 (H) mm	82 (W) x 105 (D) x 4.8 (H) mm	82 (W) x 110 (D) x 4.8 (H) mm
Form Factor	Standard MXM 3.1 Type A	Standard MXM 3.1 Type B	Standard MXM 3.1 Type B+
Environmental			
Operating Temp.	Standard: 0°C to 55°C, ETT: -40°C to 85°C	Standard: 0°C to 55°C, ETT: TBC	
Storage Temp.	-40°C to 85°C		
Module Power Consumption	50W TGP	80W TGP	110W TGP
SW Support			
OS Support	Windows 10 & Linux Drivers, 64-bit		

MXM GPU Modules with NVIDIA Pascal™ Architecture

Model Name	EGX-MXM-P1000	EGX-MXM-P2000	EGX-MXM-P3000	EGX-MXM-P5000
				
Graphic Core				
GPU	Quadro® P1000	Quadro® P2000	Quadro® P3000	Quadro® P5000
Memory	4GB GDDR5 memory, 128-bit, Bandwidth: 96 GB/s		6GB GDDR5 memory, 192-bit, Bandwidth: 168.2 GB/s	16GB GDDR5 memory, 256-bit, Bandwidth: 192.2 GB/s
GPGPU Computing				
CUDA Cores	512 CUDA® cores, 1.8 TFLOPS SP Peak	768 CUDA® cores, 2.3 TFLOPS SP Peak	1280 CUDA® cores, 3.9 TFLOPS peak FP32 Performance	2048 CUDA® cores, 6.4 TFLOPS peak FP32 performance
Compute API	CUDA Toolkit 8.0, CUDA Compute version 6.1, OpenCL™ 1.2		CUDA Toolkit 8.0, CUDA Compute version 6.1, OpenCL™ 1.2, Direct Compute	
Graphics API	OpenGL 4.5, DirectX® 12, Vulcan 1.0		Shader Model 5.1, OpenGL 4.5, DirectX® 12, Vulkan 1.0	
Display				
Display Outputs	4x DisplayPort 1.4 digital video outputs (DP++) 4K at 120Hz or 5K at 60Hz		4x DisplayPort 1.4 digital video outputs (DP++), 1x HDMI, 2x DVI, 1x eDP	
Interface	MXM 3.1, PCI Express 3.0 x16 support			
Mechanicals				
Dimensions	82 (W) x 70 (D) x 4.8 (H) mm		82 (W) x 105 (D) x 4.8 (H) mm	
Form Factor	Standard MXM 3.1 Type A		Standard MXM 3.1 Type B	
Environmental				
Operating Temp.	Standard: 0°C to 55°C, ETT: -20°C to 70°C		0°C to 55°C	
Storage Temp.	-40°C to 85°C		-40°C to 125°C	
Module Power Consumption	48W	58W	75W	100W
SW Support				
OS Support	Windows 10 & Linux drivers, 64-bit			

PEG Cards

Model	Quadro PEG RTX4000	Quadro PEG RTX5000	Quadro PEG RTX6000	Quadro PEG RTX8000	Quadro-E PEG P620	Quadro-E PEG P1000	Quadro-E PEG P2200
							
Graphic Core							
Graphic Core	NVIDIA Turing™ TU106	NVIDIA Turing™ TU104	NVIDIA Turing™ TU102		NVIDIA Pascal™ GP107		NVIDIA Pascal™ GP106
GPU	Quadro® RTX4000	Quadro® RTX5000	Quadro® RTX6000	Quadro® RTX8000	Quadro® P620	Quadro® P1000	Quadro® P2200
Memory	8 GB GDDR6 memory, 256-bit, Bandwidth: Up to 416 GB/s	16 GB GDDR6 memory, 256-bit, Bandwidth: Up to 448 GB/s	24 GB GDDR6 memory, 384-bit, Bandwidth: Up to 672 GB/s	48 GB GDDR6 memory, 384-bit, Bandwidth: Up to 672 GB/s	2GB GDDR5 memory, memory, 128-bit, Bandwidth: 80 GB/s	4GB GDDR5 memory, 128-bit, Bandwidth: 80 GB/s	5GB GDDR5 memory, 160-bit, Bandwidth: 200 GB/s
ECC	N/A	Yes			N/A		
GPGPU Computing							
CUDA Cores	2304 CUDA® cores, 7.1 TFLOPS SP Peak	3072 CUDA® cores, 11.2 TFLOPS SP Peak	4608 CUDA® cores, 16.3 TFLOPS SP Peak		512 CUDA® cores, 1.38 TFLOPS peak FP32 performance	640 CUDA® cores, 1.89 TFLOPS peak FP32 performance	1280 CUDA® cores, 3.8 TFLOPS peak FP32 performance
Tensor Cores	288 57 TFLOPS	384 89.2 TFLOPS	576 130.5 TFLOPS		-		
RT Cores	36	48	72		-		
Compute API	CUDA Toolkit 8.0, CUDA Compute version 6.1, OpenCL™ 1.2				CUDA Toolkit 8.0, CUDA Compute version 6.1, OpenCL™ 1.2, Direct Compute		
Graphics API	Shader Model 5.1, OpenGL 4.6, DirectX® 12.0, Vulkan 1.1				Shader Model 5.1, OpenGL 4.5, DirectX® 12.0, Vulkan 1.0		
Display							
Display Outputs	3x DisplayPort 1.4 digital video outputs (DP++) 1x USB-C 4x 3840x2160 @ 120 Hz 4x 5120x2880 @ 60 Hz 2x 7680x4320 @ 60 Hz	4x DisplayPort 1.4 digital video outputs (DP++) 1x USB-C 4x 4096x2160 @ 120 Hz 4x 5120x2880 @ 60 Hz 2x 7680x4320 @ 60 Hz			4x mDP 1.4, 4096x2160 @ 60Hz 5120x2880 @ 60Hz HDCP 2.2 support * VGA/DVI/HDMI support via adapter/connector/bracket		4x DP 1.4, 4096x2160 @ 60Hz 5120x2880 @ 60Hz HDCP 2.2 support * VGA/DVI/ HDMI support via adapter/ connector/ bracket
Interface	PCI Express 3.0 x16				PCI Express 3.0 x16		
Mechanicals							
Dimensions	4.4" H x 9.5" L, single slot	4.4" H x 10.5" L, dual slot			2.713" H × 5.7" L, single slot		4.4" H x 7.9" L, single slot
Form Factor	Full height, full length	Full height, full length			Low profile		-
Environmental							
Operating Temp.	0˚C~55˚C	0˚C~45˚C			0˚C to 55˚C		
Storage Temp.	-40˚C~75˚C				-40˚C to 75˚C		
Module Power Consumption	160W	265W	295W		40W	47W	75W
SW Support							
OS Support	Windows 10 & Linux drivers, 64-bit				Windows 7/10 & Linux drivers, 64-bit		

Note

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