



BL74A

Data Sheet

High-Performance Rugged Embedded Box PC with AI

Edge AI Platform for Railway and Public Transportation Systems

- **13th Gen Intel Core Processor (Raptor Lake)**
- **Up to 96 GB soldered DDR5-5200 IB ECC RAM**
- **One Metis™ AIPU accelerator module by Axelera**
- **Up to two 2.5" SATA SSDs**
- **High-speed NVMe storage**
- **Board Management Controller, TPM 2.0**
- **2× 2.5G + 2× 10G Ethernet M12, 10Gbps USB-A**
- **USB-C with DP Alt Mode, Serial, digital I/O**
- **-40 °C to +70 °C operating temperature**
- **Long-term availability**

Product Description

High-Performance Rugged Box PC

The BL74A features 13th Gen Intel Core processors with up to 14 cores (6P+8E) and up to 96 GB of soldered dual-channel DDR5-5200 IB ECC RAM. Introducing Intel's new hybrid architecture with a combination of Performance and Efficiency cores, the BL74A offers a scalable CPU performance to perfectly suit operational needs, even in harsh ambient temperatures of up to +70 °C (+85 °C for 10 min.). The BL74A is an excellent choice for demanding data processing and communication applications including virtualization, passenger internet access and intelligent CCTV supported by AI inference.

Gateway to Embedded AI

The highlight of the BL74A is the integrated Metis™ AIPU (Artificial Intelligence Processing Unit) by Axelera AI. It is an outstanding solution on a new speed level for challenging and fast embedded AI applications (e.g. CCTV with object and anomaly detection) and much more powerful than the normal GPU integrated on the CPU. The box PC is equipped with one AIPU module to boost performance.

Preliminary

www.duagon.com

2026-09-11

Copyright © 2026 duagon AG. All rights reserved.
All data is for information purposes only and not guaranteed for legal purposes. Information has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Specifications are subject to change without notice. duagon is not responsible for the results of any actions taken on the basis of information in the publication, nor for any error in or omission from the publication.



DUAGON

Fanless Operation

The rugged aluminum housing is optimized for conduction cooled (fanless) operation in high ambient temperatures. Deep cooling fins help to generate hot air flow away from the housing in a chimney effect. This results in a homogeneous heat distribution without hot spots. The BL74A can dissipate up to 95 W of thermal power at +70 °C ambient.

Comprehensive Management

A versatile board management controller provides intelligent monitoring and supervision of all vital signals including supply and on-board voltages, temperatures, and a watchdog for the OS.

Additionally, the BL74A supports Intel AMT remote out-of-band management and holds a discrete TPM module for hardware based system security.

This Product is Coming Soon

The BL74A will be available once conformity assessments are completed.

Technical Data

CPU

- The following CPU types are supported:
 - Intel Core i7-1370PRE, 14 cores (6P+8E), 20 threads, 1.9 GHz, 96 EU, 28 W, -40 °C to +100 °C
 - Intel Core i7-1370PRE, 14 cores (6P+8E), 20 threads, 2.0 GHz, 96 EU, 35 W, -40 °C to +100 °C

Memory

- System RAM: 96 GB max., soldered DDR5

Mass Storage

- NVMe (soldered); 120 GB
- The following mass storage devices can be assembled: SSD/HDD 2.5" (SATA)

Graphics

- Processor graphics

Interfaces

- SSD/HDD slot
 - 1 × SATA 2.5"; SATA Revision 3.x; externally accessible (shuttle)
 - 1 × SATA 2.5"; SATA Revision 3.x; externally accessible (shuttle)
- AI functionality
 - 1 × M.2 2242/2260/2280 socket 3 Key M; PCIe x4
 - Assembled: Axelera Metis M.2 Edge AI Accelerator
- Video: 1 × DisplayPort 1.4, USB Type-C
- USB: 1 × USB 3.2 Gen 2x1, Type-A
- Ethernet
 - 2 × 100/1000BASE-TX / 2.5GBASE-TX, M12, X-coded, receptacle
 - 2 × 100/1000BASE-TX / 2.5/5/10GBASE-TX, M12, X-coded, receptacle
- Serial
 - 1 × USB-to-UART, USB Type-A
 - 1 × RS232/RS422/RS485, isolated, D-Sub, 9-pin, receptacle
- LED
 - Status: board status (BMC), power status
 - Ethernet: link, activity
 - User configurable: 4 ×
- Power: 1 × power in, M12, K-coded, plug
- Earthing connection: M4 stud

Supervision and Management

- Board management controller
- Temperature measurement
- System watchdog (BMC)
- Power supply monitoring
- Real-time clock, buffered by supercapacitor
 - Buffer time: 4 days max.
- Trusted Platform Module 2.0

Electrical Specifications

- Supply voltage
 - 24 V DC to 48 V DC nom. (EN 50155)
 - 72 V DC to 110 V DC nom. (EN 50155)
- Power consumption: 95 W max.

Mechanical Specifications

- Dimensions: (W) 390 mm, (D) 305 mm, (H) 87 mm
- Weight: 9.5 kg
- Mounting: Wall/flat surface
- Cooling: Conduction cooling
- Protection rating: IP20

Product Compliance: Rail - Rolling Stock

- Operating temperature: -40 °C to +70 °C, +85 °C for 10 min (EN 50155:2021, class OT4, ST1)
- Equipment location
 - EN 50155:2021, location 1, closed electrical operating area
 - EN 50155:2021, location 2, cabin and interiors
- Rapid temperature variations: EN 50155:2021, class H1, no requirements
- Storage temperature: -40 °C (EN 50155:2021) to +85 °C (EN 60068-2-2, Bb)
- Altitude: +3000 m max. (EN 50125-1:2014, class AX)
- Pollution degree: EN 50124-1:2017, class PD2
- Humidity: +55 °C and +25 °C, 100 % RH max. (EN 50155:2021)
- Shock: 30 ms @ 100 m/s² (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B, double acceleration)
- Vibration: 10 min @ 2.02 m/s² (functional) and 5 h @ 11.44 m/s² (long-life) (EN 61373:2010/AC:2017-09, vehicle body, cat. 1, class B, double acceleration)
- Power supply
 - Interruption of voltage supply: 10 ms (EN 50155:2021, class S2)
 - Supply change-over: 100 ms @ 0.6 x Un (EN 50155:2021, class C1)
- Electrical safety
 - EN 50155:2021
 - EN 50153:2014 + A1:2017 + A2:2020
 - EN 50124-1:2017
 - EN ISO 13732-1:2008
- Fire protection: EN 45545-2:2020, EL9, HL3
- EMC emission
 - EN 50121-3-2:2016 + A1:2019
 - Regelung Nr. EMV 06 :2019-05-09 (2.0), Anhang E: Messung an Geräten, Schutzklasse S1
 - Regelwerk 50.02.01 :2021-12-01, 12.3.2. EMV - Funk, prequalified according to electronic equipment tests defined by Deutsche Bahn EMV 06 standard, class S1, for risk minimization in finished vehicle test
- EMC immunity: EN 50121-3-2:2016 + A1:2019
- Protective coatings: EN 50155:2021, class PC2 (Any PCB protected on both sides)
- Useful life: 20 years (EN 50155:2021, class L4)

Product Compliance: Rail - Wayside Non-Safety Related

- Operating temperature: -25 °C to +70 °C (EN 50125-3:2003, class T1, control cabinet)
 - Storage temperature: -40 °C (EN 60068-2-1:2007, Ab) to +85 °C (EN 60068-2-2:2007, Bb)
 - Altitude: +3000 m max. (EN 50125-3:2003, class AX)
 - Pollution degree: EN 50124-1:2017, class PD2
 - Humidity: +55 °C and +25 °C, 90 % to 100 % RH (EN 60068-2-30:2005, Db)
 - Shock: 11 ms @ 20 m/s² (EN 50125-3:2003, in a switch cabinet 1 m to 3 m from the track)
 - Vibration: 2.3 m/s² (EN 50125-3:2003, in a switch cabinet 1 m to 3 m from the track)
 - Electrical safety
 - EN 50124-1:2017
 - EN 62368-1:2014 + AC:2015
 - EMC emission
 - EN 50121-4:2016
 - EN 61000-6-4:2007 + A1:2011
 - EN IEC 61000-6-4:2019
 - EMC immunity: EN 50121-4:2016
 - Restrictions: Service interfaces may only be used with a maximum cable length of 3 m for installations 10 m or less away from the track.
-

Product Compliance: Information Technology Equipment

- Operating temperature: 0 °C (EN 60068-2-1:2007, Ae, temperature value in compliance with 6.6 b) to +60 °C (EN 60068-2-2:2007, Be)
 - Storage temperature: -40 °C (EN 60068-2-1:2007, Ab) to +85 °C (EN 60068-2-2:2007, Bb)
 - Altitude: +3000 m max. (EN 62368-1:2014 + AC:2015)
 - Humidity: +55 °C and +25 °C, 90 % to 100 % RH (EN 60068-2-30:2005, Db)
 - Electrical safety: EN 62368-1:2014 + AC:2015
 - Flammability (PCBs): UL 94 V-0
 - EMC emission: EN 55032:2015 (multimedia equipment), class A (industrial environments)
 - EMC immunity: EN 55035:2017 (multimedia equipment)
-

BIOS/Boot Loader

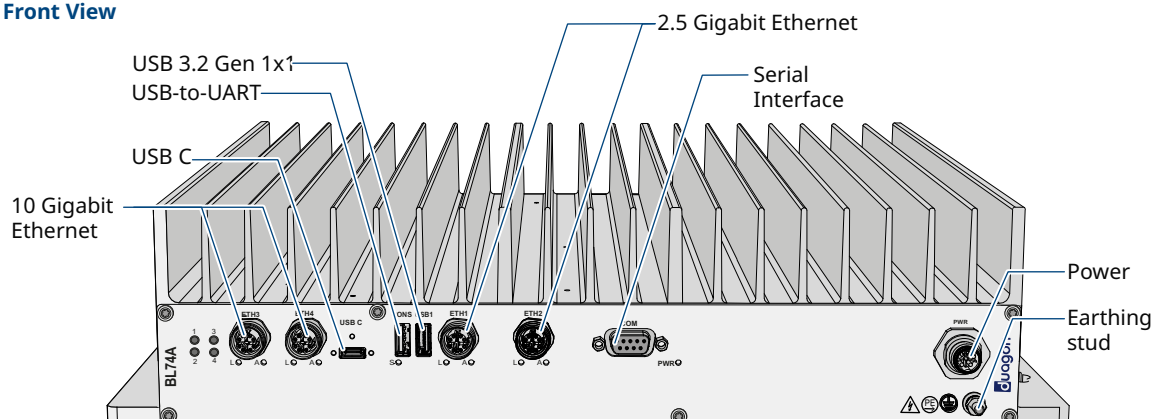
- AMI Aptio UEFI Firmware
-

Software Support

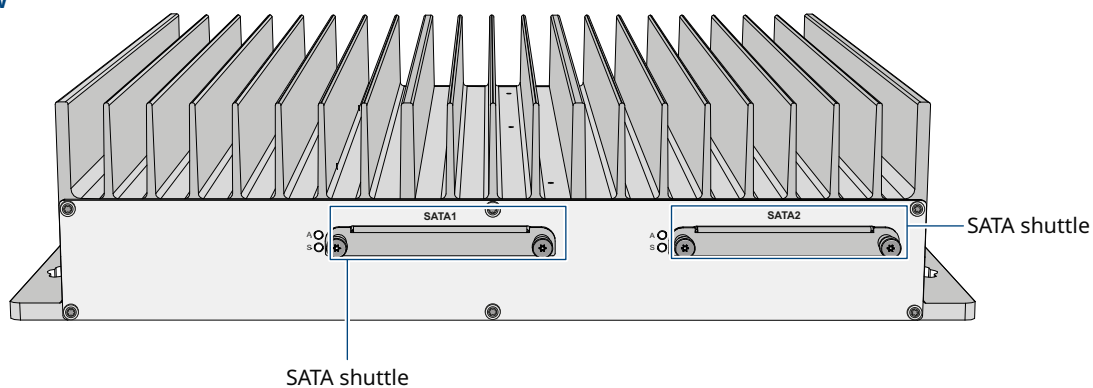
- Linux
- See the product User Manual for details on software support:
www.duagon.com/products/bl74a/#doc
- See section Software on the product web page for available packages:
www.duagon.com/products/bl74a/#downl
- See also Application Note *Recommendations for a Robust Software Setup*

Interfaces

Front View



Rear View



Ordering Information

Standard Models

09BL74A00

Intel Core i7-1370PRE, 2.0 GHz, 35 W, 64 GB DDR5 DRAM, 120 GB NVMe soldered, 1x Axelera AIPU, 1x Swissbit 1920 GB 3D TLC, 24 V DC to 48 V DC, -40 °C to +70 °C