ADVANTECH PROG. CONTROLLER

User Manual

Version

1.0.0

Department

TEC-EL-04325

Creation date

2023-02-08

Audience

QA/Support/R&D/Certification

Version History

Version	Department	Initials	Date	Comments
1.0.0	R&D	Y.P.	2023/02/08	- First Draft

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Topic

This document provides technical information and specifications for the Advantech Progressive Controller.

Figure 1: Advantech Progressive Controller Enclosure

Enclosure dimension

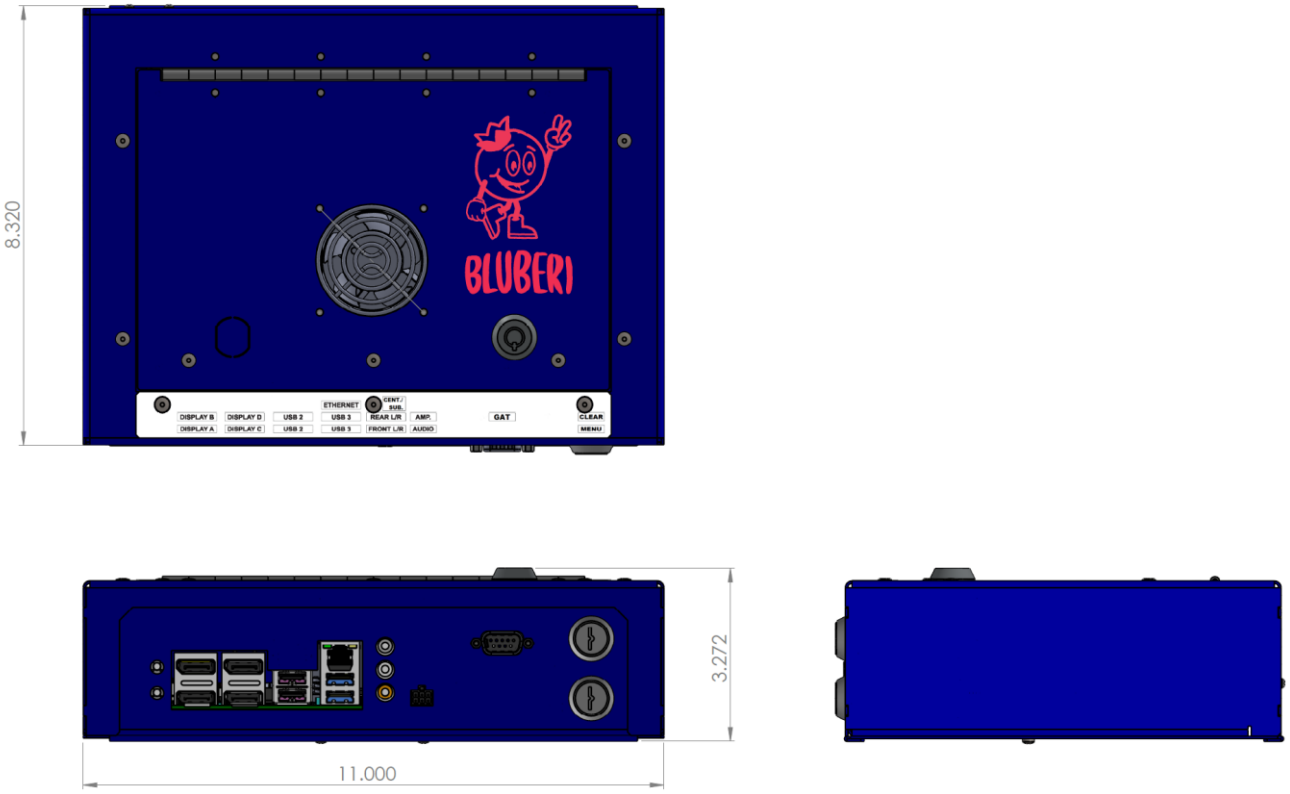


Figure 2: Enclosure dimension

Advantech DPX-S450

This board is a off the shelf board sold by Advantech, this board is designed specifically for the gaming industry.

Block Diagram

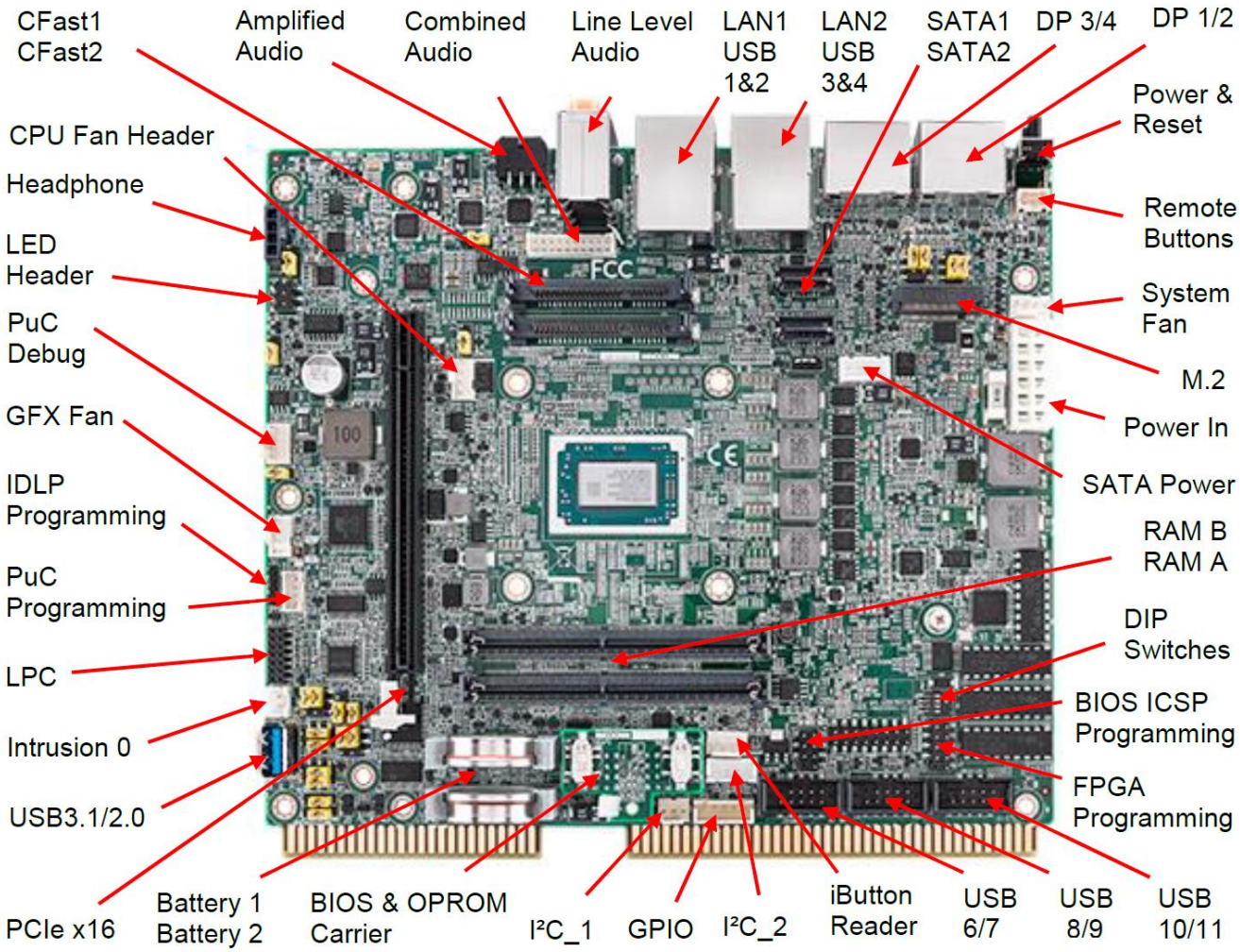


Figure 3: DPX-S450 Block diagram

General Description

Chipset
AMD Ryzen™ SoC V1807B (Quad core APUs up to 3.8Ghz, up to 2MB L2 cache,Vega GPU, 11 compute units, 54W).

Display
4x Digital Display Interface (DDI) on Display Port connector. Each DDI support the Dual-Mode Implementation (also called DP++). This feature gives the option to link the monitor with a Display Port cable or a passive Display Port to DVI cable/adapter.

Sound
High Definition audio codec ALC888 Class D 2.1 amplifier system, output 15W per channel (FL, FR, LFE) with selectable dynamic bass boost.
Front I/O Panel & On-board Audio connectors FL-Out, FR-Out, LFE-Out, RL-Out, RR-Out, Line In L&R, MIC In, SPDIF In, SPDIF Out (x2)
PC speaker (buzzer).

USB
2x USB 3.0 ports available on the front panel. The maximum allowable current to be drained from the USB 3.0 ports is limited to 1.1A.
2x USB 2.0 ports available on the front panel. The maximum allowable current to be drained from the USB 2.0 ports is limited to 500mA.
1x USB 3.0 available inside the progressive controller box. The maximum allowable current to be drained from the USB 3.0 ports is limited to 1.1A.

Ethernet
1x 10/100/1000 MBPS Integrated Ethernet Controller (front panel connector RJ45).
Fully compliant with IEEE 802.3, 802.3u and 802.3ab

Serial ATA /M.2
2x CFAST sockets supporting SATA 3.0 (data transfer up to 6GB/s)
1x M.2 slot, PCIe x2

APU Memory (DDR4)
Dual channel DDR4-3200MHz SODIMM Sockets (up to 2x32GB memory).

BIOS
AMI BIOS.
The DPX-S450 supports a BIOS carrier PCB which can include both the BIOS and OPROM SPI

Serial Ports
1x RS232 on male DB9 connector (GAT).

DOORs Controller
The system is responsible to monitor up to 8 different doors events.
Real Time Clock chip.
Lithium Battery, CR2477N 3.0V, 950 mAh.

Memories
8MBytes battery backed SRAM.
Use Lithium Battery, CR2477N 3.0V, 950 mAh.

Security
8-pins SIM card connector (push in/push out) to host a proprietary security card (SAM).

Miscellaneous
On-board 1-wire DKEY interface
Pack of 4 dipswitch

BIOS:

BIOS flash chipset is installed on a small PCB module to allow easy removal and verification (signature) from required jurisdiction.

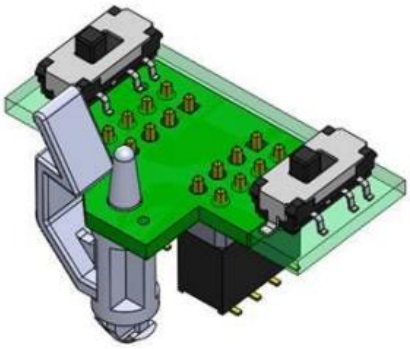


Figure 4: BIOS module

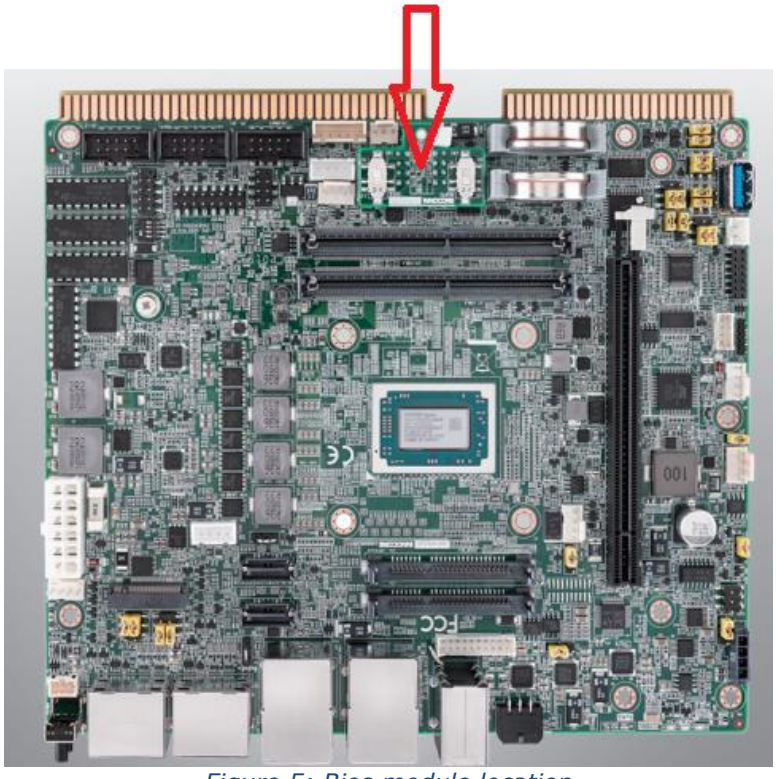


Figure 5: Bios module location

Removing the BIOS PCB module

To remove the SPI carrier PCB from the main board ease the plastic securing clip to one side and carefully removing the carrier vertically. Refitting is the opposite of extraction.

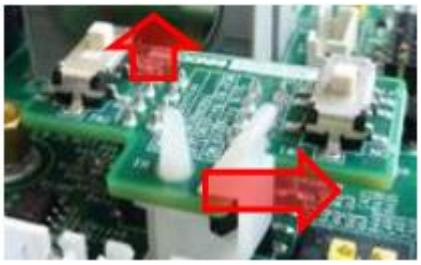


Figure 6: Bios removal

DPX-S450 Jumpers Settings

Before you proceed with the DPX-S450 CPU installation, make sure all the jumpers are properly configured.

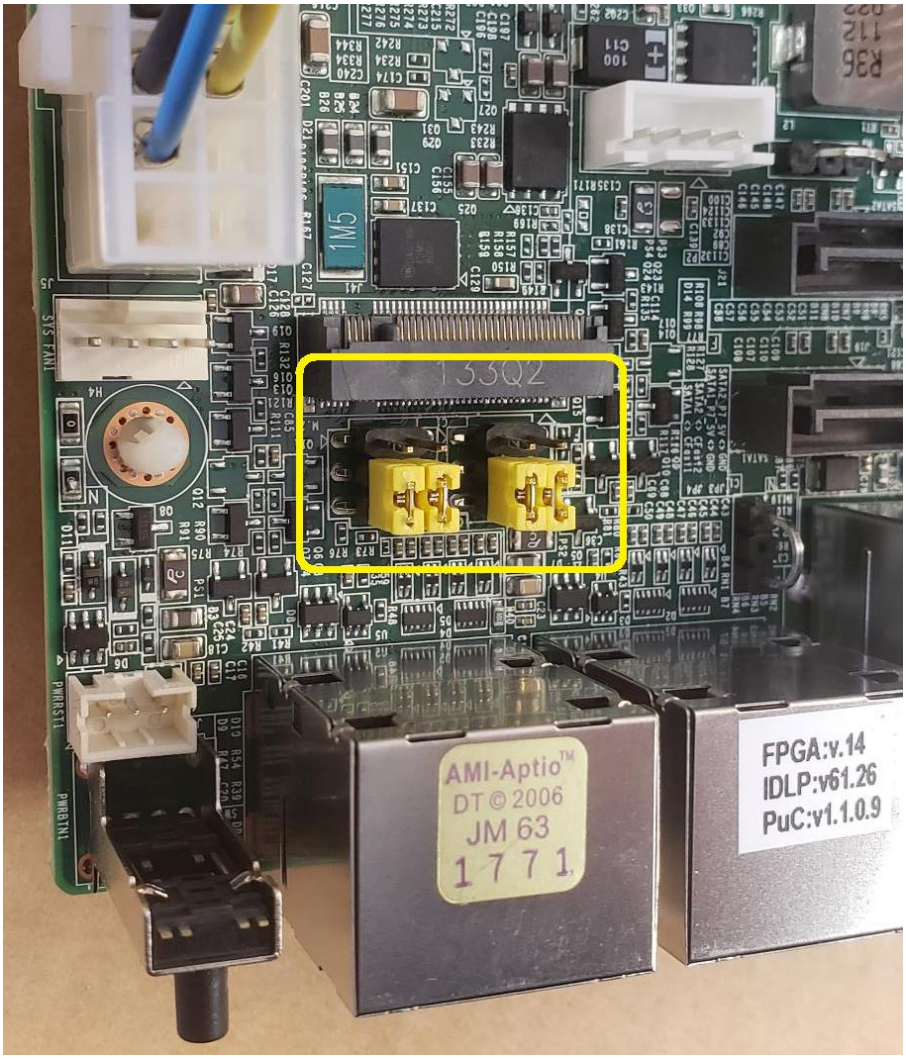


Figure 7: SATA configuration

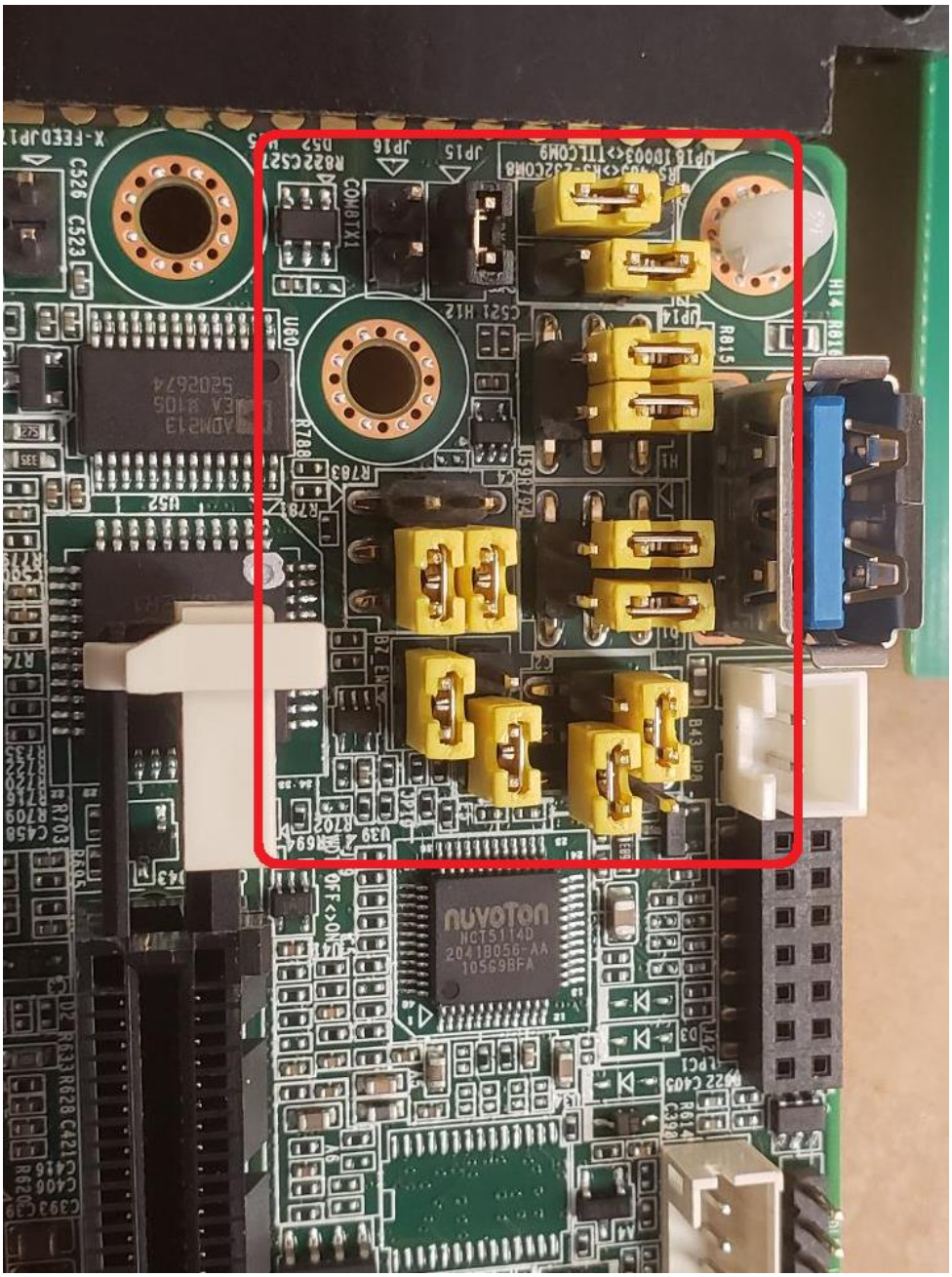


Figure 8: Serial ports configurations

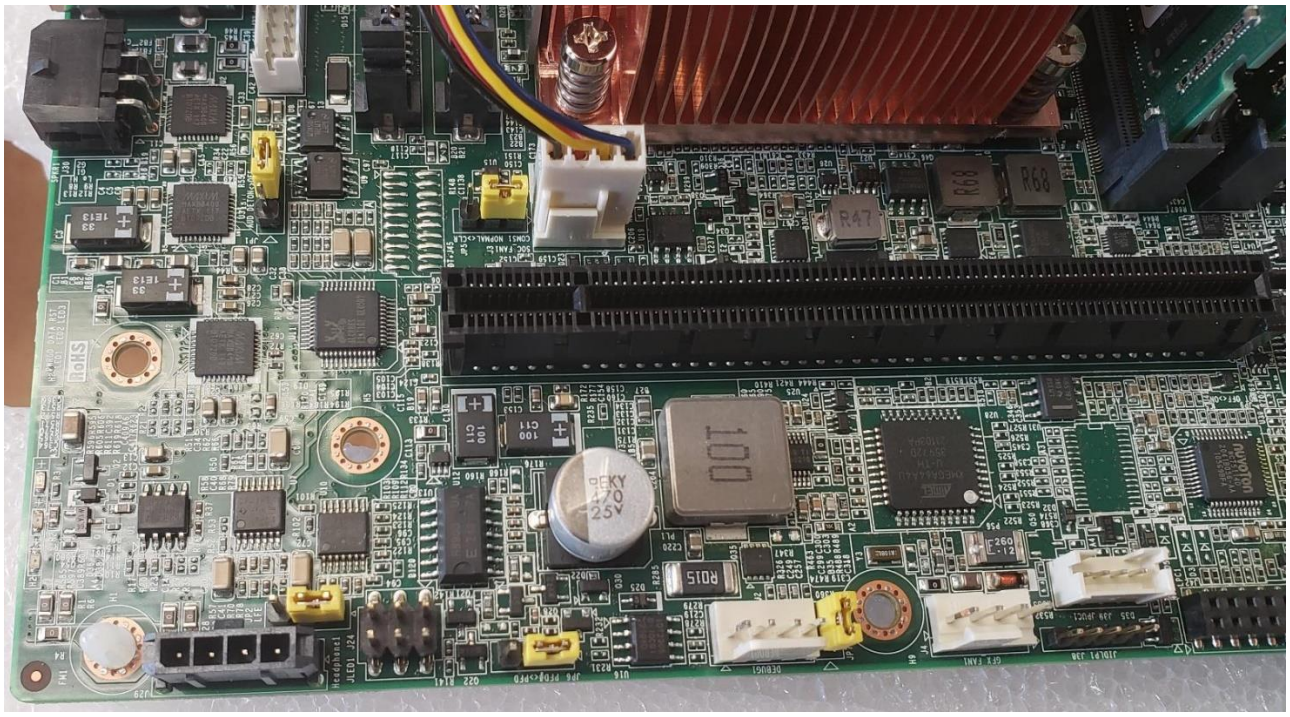


Figure 9: Miscellaneous configuration

Security

Door Tracking Controller

Enclosure door access monitoring inputs even when power is off and keeping track of the date and time.

SAM Card

Software protection against piracy and software modification.

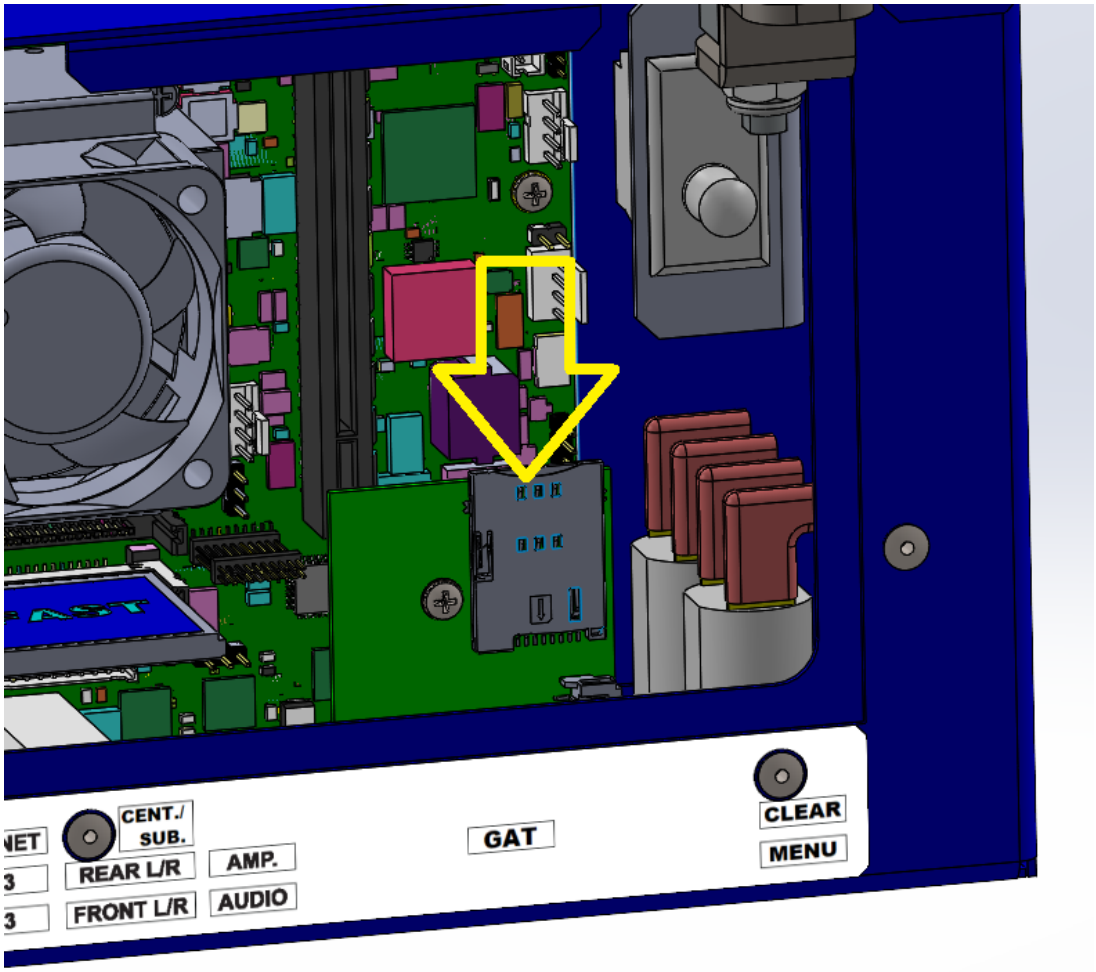


Figure 10: SAM card location

Sound and Video:

DPX-S450 comes with four native DP++ (Display Port) digital interfaces. DP++ interface can be used with an appropriate passive adaptor cable to get DVI or HDMI. An active adaptor is also available on the market to convert display port signal to VGA (HD15).

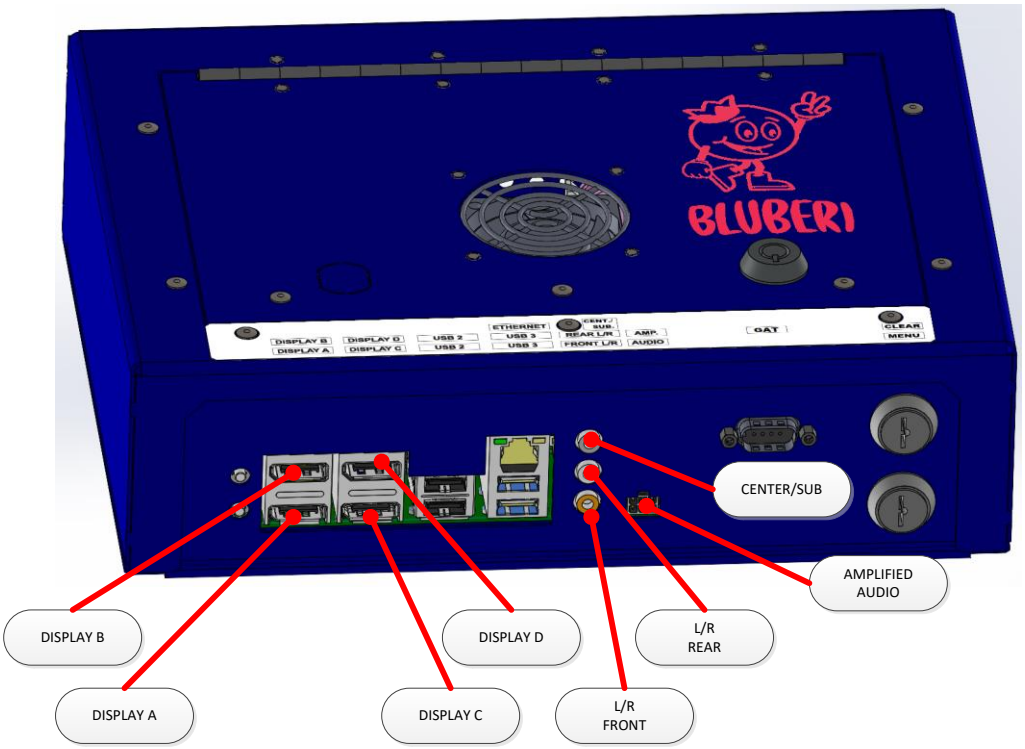


Figure 11: Video and Sound connectors

A 1/8” jack for the front left and right is available in the front panel. There is also an amplified audio output available on the front connector, that provide 15W per channel.

Amplified Audio

The on-board 2.1 audio amplification is provided using chip down MAX98400 class D amplifiers. The audio amplifiers are configured to provide a maximum of:

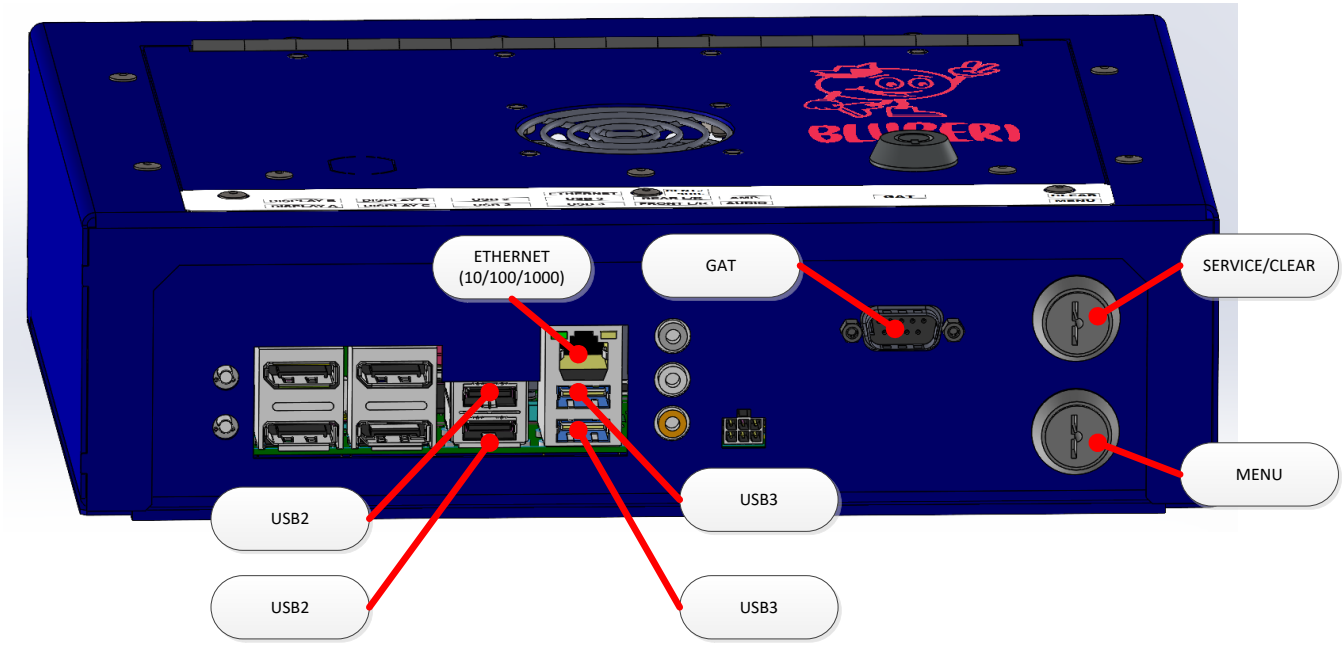
- 2.1 Audio (FL, FR and LFE) 15W + 15W + 15W into 8 ohms speakers (8 ohm is the minimum supported speaker impedance).
- The amplifiers are gain limited to achieve their rated output when driven by a 1V p-p sine wave at 1Khz. Allowance is made to overdrive the input up to 2Vp-p from the codec at the end users discretion (via OS settings).

The amplified audio connector is a 90º 6 pin Molex Microfit 3.0 connector.

Signal	Pin	Pin	Signal
FL+	4	1	FL-
FR+	5	2	FR-
LFE+	6	3	LFE-

Figure 12: Amplified audio connector.

Ethernet, USB, GAT & KeySwitches



Ethernet RJ-45 Connector (10/100/1000 MBPS)

PIN	FUNCTION
1	TXRX A+
2	TXRX A-
3	TXRX B+
4	TXRX C+
5	TXRX C-
6	TXRX B-
7	TXRX D+
8	TXRX D-

USB2 Connector

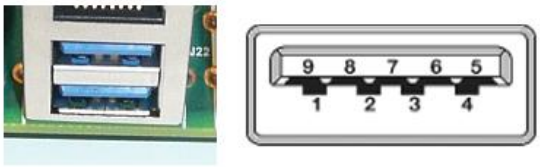
PIN	FUNCTION
1	+5VDC*
2	DAT-
3	DAT+
4	GND

*+5VDC current limited to 500mA for USB2

USB3 Connector

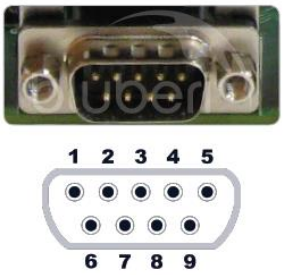
PIN	FUNCTION
1	+5VDC*
2	DAT-
3	DAT+
4	GND
5	STDA_SSRX-
6	STDA_SSRX+
7	GND DRAIN
8	STDA_SSTX-
9	STDA_SSTX+

*+5VDC power limited to 1.1A for USB3



GAT DB-9 connector

PIN	FUNCTION
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC



Miscellaneous

DIP switch

A 4 position DIP switch is available on the Advantech board for software configuration.

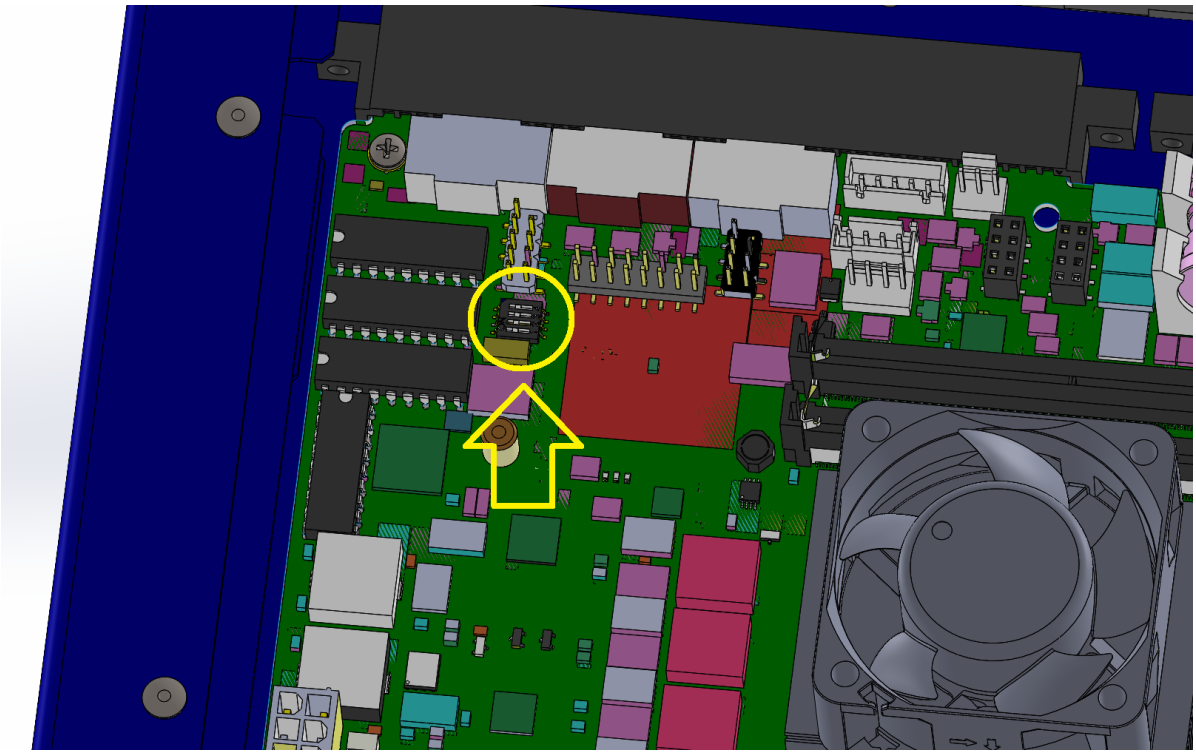


Figure 13: DIP switch

DIP switch functions

DIPSW#	POS	FUNCTION
DIP SWITCH #1	OFF	NORMAL START-UP (LOAD CFAST GAME)
	ON	REMAIN IN APPLICATION LOADER APP.
DIP SWITCH #2	OFF	IP ADDRESS REQUESTED FROM DHCP
	ON	DISABLE ETHERNET
DIP SWITCH #3	OFF	NORMAL RESET
	ON	HARDRESET
DIP SWITCH #4	OFF	N/A
	ON	N/A

Lock installation

Here is picture that explain how to install the lock:

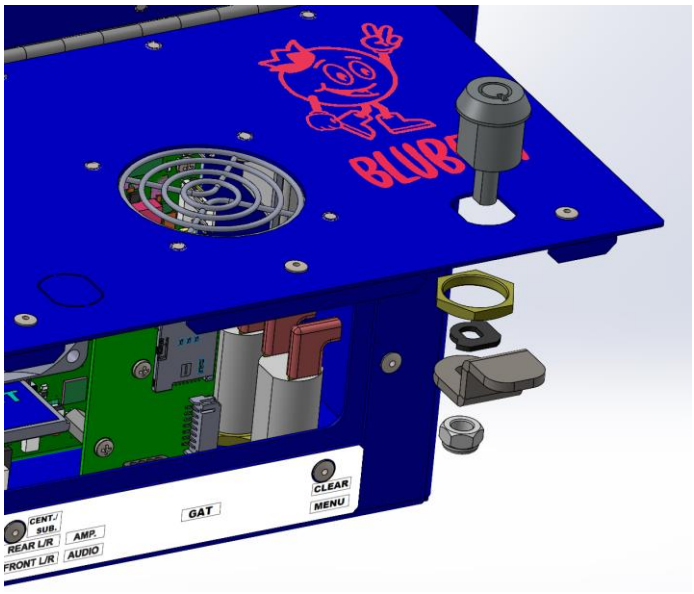


Figure 14: Lock installation

Second Lock (optional)

An optional second lock can be installed on the cover door for some jurisdiction. Break and remove knock-out to install the lock when required. Please contact Bluberi for required hardware.

Contact Us

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