

PCI EXPRESS BACKPLANES

USER GUIDE

Express7-G3

Express9

Express9-G3

Express11-G3

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Unpacking

Your packing box will contain one or more of the following Datapath backplanes:

- The Express7-G3 Backplane
- The Express9 Backplane
- The Express9-G3 Backplane
- The Express11-G3 Backplane

Models Available

Code	Description
Express7-G3	7 Slot PCI Express Gen.3 Expansion backplane PCIe 3.0 Switch
Express9	9 Slot PCI Express Gen.2 Expansion backplane PCIe 2.0 Switch
Express9-G3	9 Slot PCI Express Gen.3 Expansion backplane PCIe 3.0 Switch
Express11-G3	11 slot PCI Express Gen.3 Expansion backplane PCIe 3.0 Switch

Overview

The Datapath range of Express backplanes each provide multiple PCI Express slots. The backplanes can be used with standard PICMG single board computers (SBC) as a stand alone system or in combination with multiple backplanes providing a PCI Express expansion system for a standard PC.

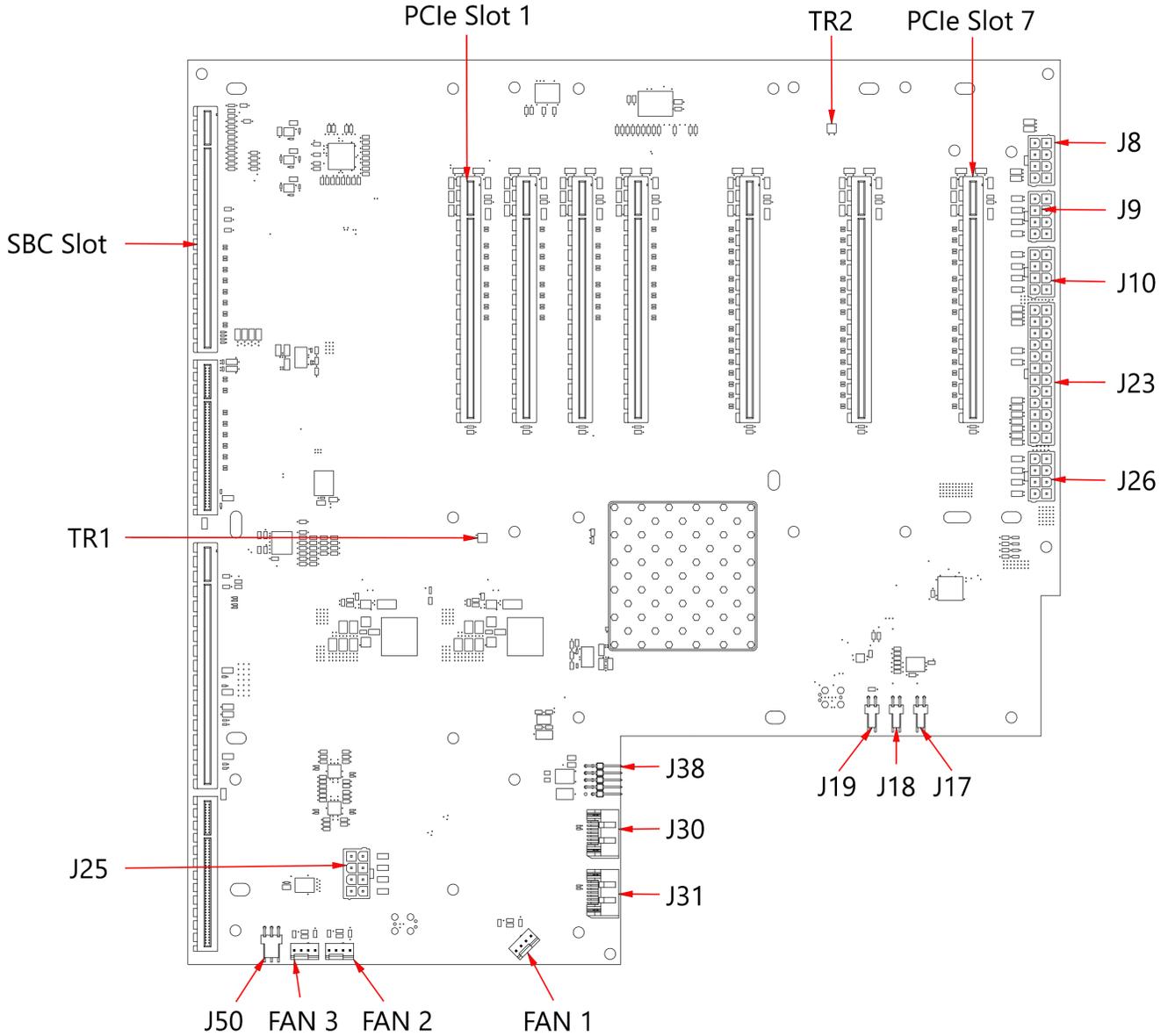
Installing the Backplane

The Express backplanes are fixed into the chassis by screwing down on the mounts located in the host chassis. Ensure the rear of the backplane is facing the rear of the chassis.

The chassis will have a number of mount locations not used by the backplane, it is important that mounts are not fitted to locations which are not utilised by the backplane.

Backplane Layout

Express7-G3



Connector	Description
J8, J9, J10	Auxiliary power out for PCIe graphics card auxiliary power.
J17	Power on switch.
J18	Reset switch.
J19	Power on LED.
J23	ATX Power in from PSU.
J25	Auxiliary power out for SBC.
J26	Auxiliary in from PSU.
J30, J31	SATA3 connector.
J38	USB 2 header.
J50	GPIO header.
Fan 1, 2, 3	Chassis fan connectors.
TR1, TR2	Temperature sensors.

Express7-G3 PCIe Port Width

Slot	Description	Bandwith
SBC	PICMG 1.3 Slot for SBC	x16 Gen 3
Slot 1	PCIe Slot 1	x8 Gen3
Slot 2	PCIe Slot 2	x8 Gen3
Slot 3	PCIe Slot 3	x8 Gen3
Slot 4	PCIe Slot 4	x8 Gen3
Slot 5	PCIe Slot 5	x16 Gen 3
Slot 6	PCIe Slot 6	x16 Gen 3
Slot 7	PCIe Slot 7	x16 Gen 3

All PCIe slots use a physical x16 connector and therefore accepts any PCIe board type.

Express7-G3 LED's

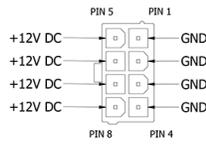
The Express7-G3 has an LED for each PCI Express slot and the PICMG1.3 SBC slot. The LED's indicate the following:

D1	ON = +12V supply present
D2	ON = +3.3V supply present
D3	ON = +5V supply present
D4	ON = +5V Standby supply present
D5	ON = PICMG link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D8	ON = PCIe Slot 1 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D7	ON = PCIe Slot 2 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D12	ON = PCIe Slot 3 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D11	ON = PCIe Slot 4 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D10	ON = PCIe Slot 5 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D13	ON = PCIe Slot 6 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D9	ON = PCIe Slot 7 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D17	ON= PLX Fatal Error

If an LED is not illuminated, this indicates that a link has not been established. The LED's will not flash on slots where no cards are installed.

Express7-G3 Connectors

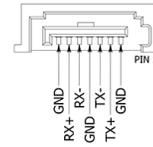
Auxiliary Power Connectors



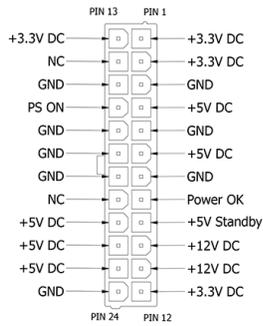
Front Panel Connectors



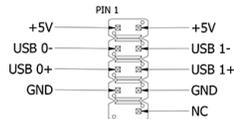
SATA3 Connectors



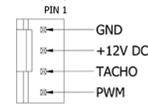
ATX Power Connector



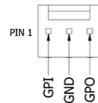
USB Header



Chassis Fan Headers

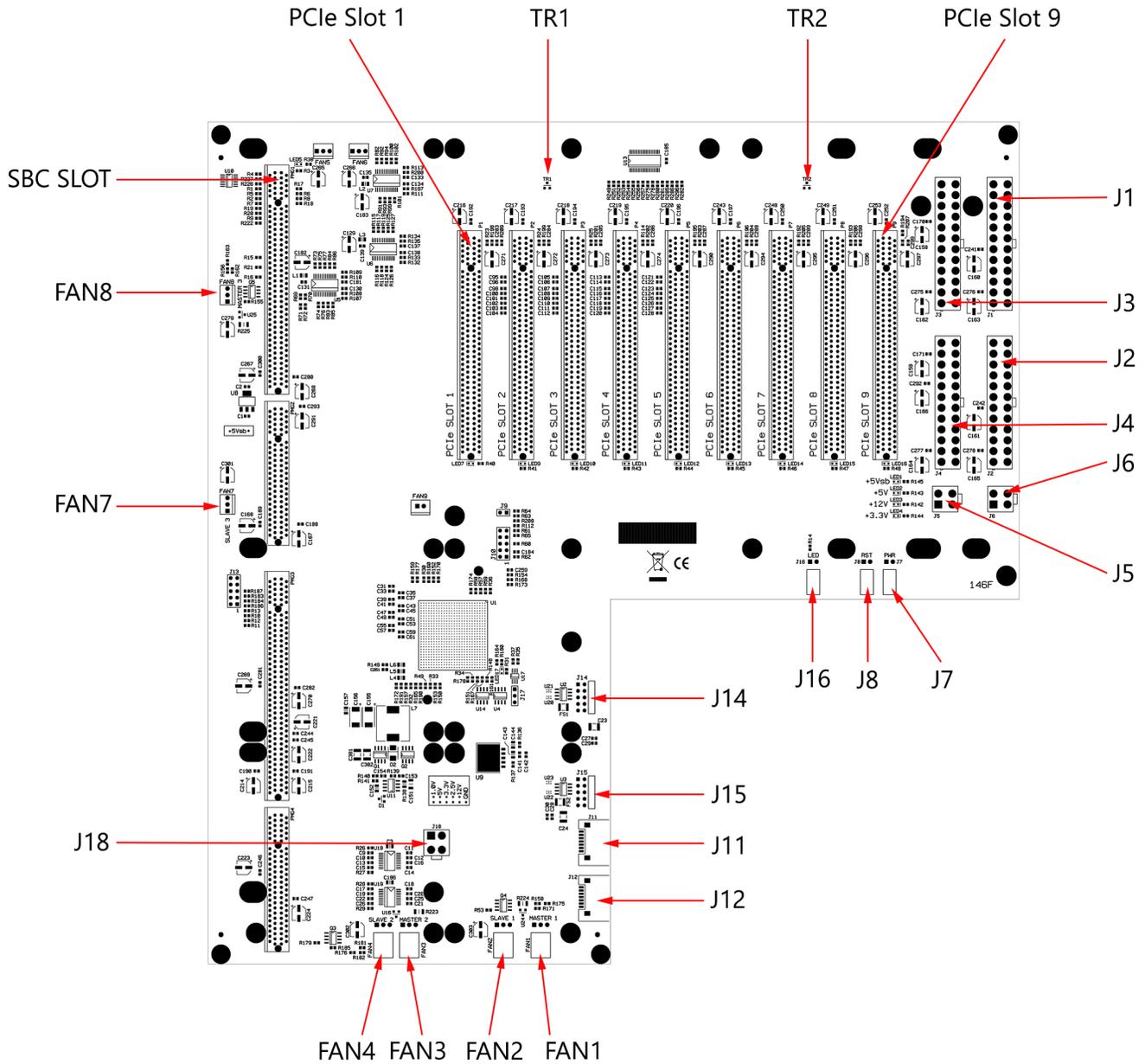


GPIO Header



Express7-G3 Specifications

Max Power (without SBC)	25W
Power requirements	Max current at +3.3V < 0.5A Max current at +12V < 0.5A Max current at +5V < 4A
Form Factor	PICMG1.3 Host SBC interface (x16 PCIe) 3 x PCI Express (x16) expansion slots 4 x PCI Express (x8) expansion slots
ATX/PSU	1 x 24 pin power connector 3 x 8 pin AUX Power out. 1 x AUX Power out for SBC 1 x AUX Power in for PSU
SATA Ports	2 x ports via PICMG1.3 interface
USB Port (2.0)	2 x ports via PICMG1.3 interface
Operating Temperature	0 to 35 deg C/32 to 95 deg F
Storage Temperature	-20 to 70 deg C/-4 to 158 deg F
Relative Humidity	5% to 90% non-condensing



Connector	Description
J1	ATX Power in from PSU.
J2	ATX Power in from PSU.
J3	ATX Power in from PSU.
J4	ATX Power in from PSU.
J5	Auxiliary power in from PSU.
J6	Auxiliary power in from PSU.
J7	Power on switch.
J8	Reset switch
J9	GPIO header.
J11, J12	SATA2 connector.
J14, J15	USB 2 header.
J16	Power on LED.
J18	Auxiliary power out for SBC.
Fan 1, 2, 3, 4, 7, 8	Chassis fan connectors.
TR1, TR2	Temperature sensors.

Slot	Description	Bandwith
SBC	PICMG 1.3 Slot for SBC	x16 Gen 2
Slot 1	PCIe Slot 1	x8 Gen2
Slot 2	PCIe Slot 2	x4 Gen2
Slot 3	PCIe Slot 3	x4 Gen2
Slot 4	PCIe Slot 4	x4 Gen2
Slot 5	PCIe Slot 5	x4 Gen2
Slot 6	PCIe Slot 6	x4 Gen2
Slot 7	PCIe Slot 7	x4 Gen2
Slot 8	PCIe Slot 8	x4 Gen2
Slot 9	PCIe Slot 9	x4 Gen2

All PCIe slots use a physical x16 connector and therefore accepts any PCIe board type.

Express9 LED's

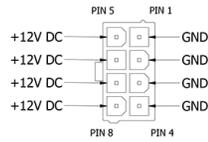
The Express9 has an LED for each PCI Express slot and the PICMG1.3 SBC slot. The LED's indicate the following:

LED01	ON = +5V Standby supply present
LED02	ON = +5V supply present
LED03	ON = +12V supply present
LED04	ON = +3.3V supply present
LED05	ON = PICMG link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED07	ON = PCIe Slot 1 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED09	ON = PCIe Slot 2 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED10	ON = PCIe Slot 3 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED11	ON = PCIe Slot 4 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED12	ON = PCIe Slot 5 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED13	ON = PCIe Slot 6 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED14	ON = PCIe Slot 7 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED15	ON = PCIe Slot 8 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED16	ON = PCIe Slot 9 link speed = Link established, FLASH-FAST = G2, FLASH-SLOW = G1
LED17	ON= PLX Fatal Error

If an LED is not illuminated, this indicates that a link has not been established. The LED's will not flash on slots where no cards are installed.

Expressg Connectors

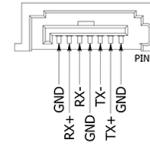
Auxiliary Power Connectors



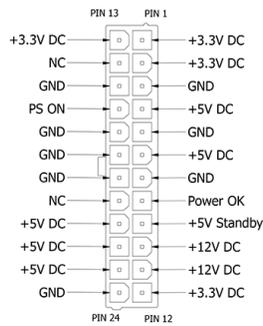
Front Panel Connectors



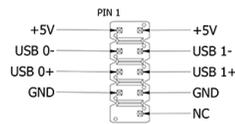
SATA3 Connectors



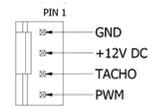
ATX Power Connector



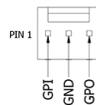
USB Header



Chassis Fan Headers



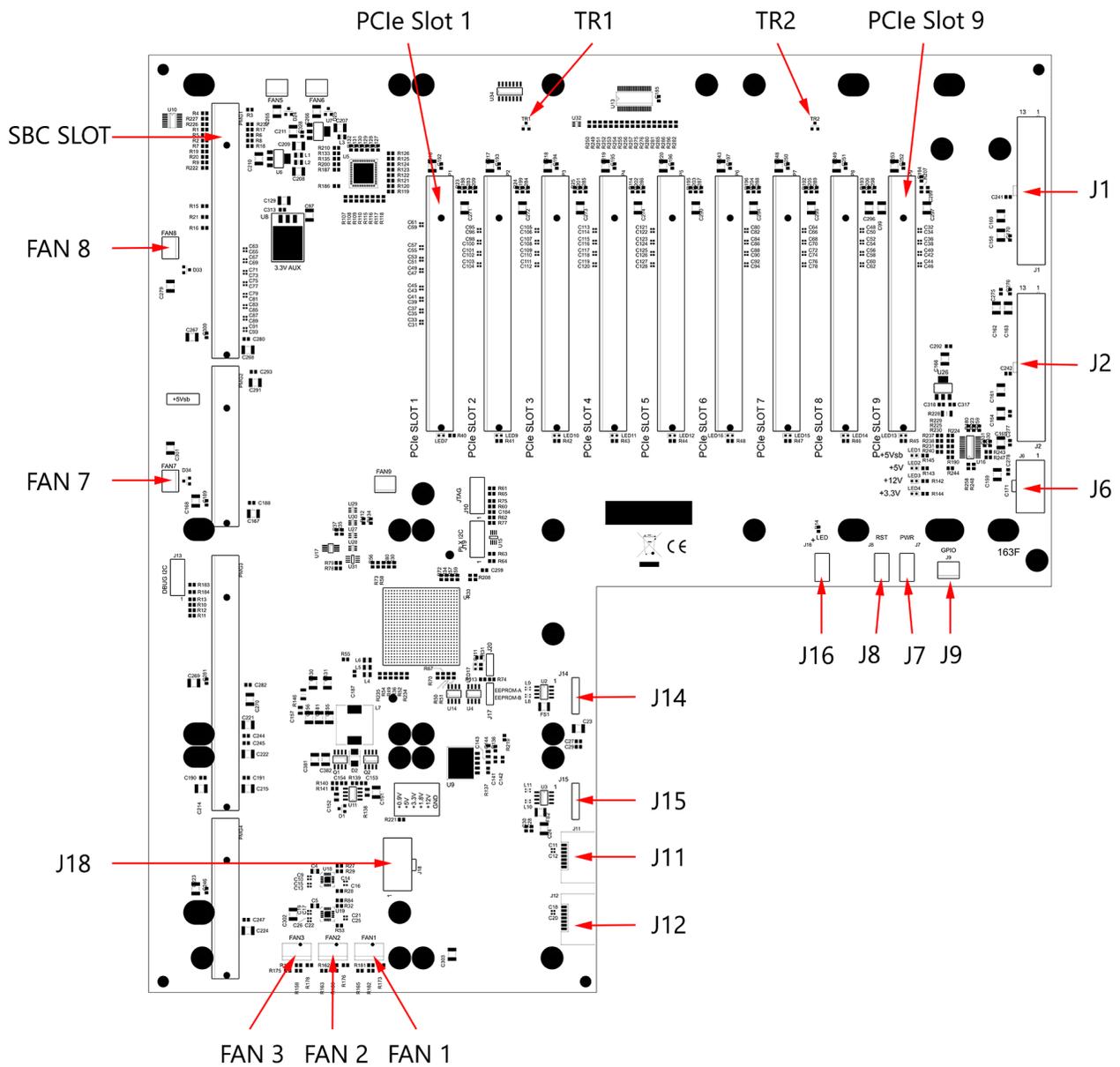
GPIO Header



Expressg Specifications

Max Power (without SBC)	16W
Power requirements	Max current at +3.3V < 0.5A Max current at +12V < 0.5A Max current at +5V < 1.0A
Form Factor	PICMG1.3 Host SBC interface 1 x PCI Express (x8) expansion slot 8 x PCI Express (x4) expansion slots
ATX PSU	4 x 24 pin power connectors 1 x 8 pin AUX Power in from PSU 1 x 8 pin AUX Power out for SBC
SATA Ports	2 x ports via PICMG1.3 interface
USB Port	2 x ports via PICMG1.3 interface
Operating Temperature	0 to 35 deg C / 32 to 95 deg F
Storage Temperature	-20 to 70 deg C / -4 to 158 deg F
Relative Humidity	5% to 90% non-condensing

Express9-G3



Connector	Description
J1	ATX Power in from PSU.
J2	ATX Power in from PSU.
J6	Auxiliary power in from PSU.
J7	Power on switch.
J8	Reset switch
J9	GPIO header.
J11, J12	SATA connector.
J14, J15	USB 2 header.
J16	Power on LED.
J18	Auxiliary power out for SBC.
Fan 1, 2, 3, 7, 8	Chassis fan connectors.
TR1, TR2	Temperature sensors.

Slot	Description	Bandwith
SBC	PICMG 1.3 Slot for SBC	x16 Gen 3
Slot 1	PCIe Slot 1	x8 Gen3
Slot 2	PCIe Slot 2	x4 Gen3
Slot 3	PCIe Slot 3	x4 Gen3
Slot 4	PCIe Slot 4	x4 Gen3
Slot 5	PCIe Slot 5	x4 Gen3
Slot 6	PCIe Slot 6	x4 Gen3
Slot 7	PCIe Slot 7	x4 Gen3
Slot 8	PCIe Slot 8	x4 Gen3
Slot 9	PCIe Slot 9	x4 Gen3

All PCIe slots use a physical x16 connector and therefore accepts any PCIe board type.

Express9-G3 LED's

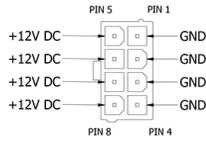
The Express9-G3 has an LED for each PCI Express slot and the PICMG1.3 SBC slot. The LED's indicate the following:

LED01	ON = +5V Standby supply present
LED02	ON = +5V supply present
LED03	ON = +12V supply present
LED04	ON = +3.3V supply present
LED07	ON = PCIe Slot 1 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED09	ON = PCIe Slot 2 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED10	ON = PCIe Slot 3 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED11	ON = PCIe Slot 4 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED12	ON = PCIe Slot 5 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED16	ON = PCIe Slot 6 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED15	ON = PCIe Slot 7 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED14	ON = PCIe Slot 8 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED13	ON = PCIe Slot 9 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
LED17	ON= PLX Fatal Error

If an LED is not illuminated, this indicates that a link has not been established. The LED's will not flash on slots where no cards are installed.

Express9-G3 Connectors

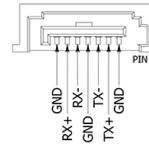
Auxiliary Power Connectors



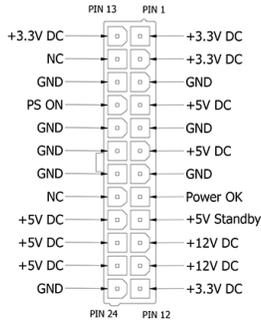
Front Panel Connectors



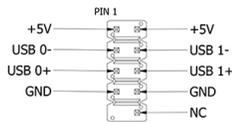
SATA3 Connectors



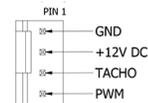
ATX Power Connector



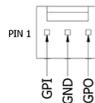
USB Header



Chassis Fan Headers



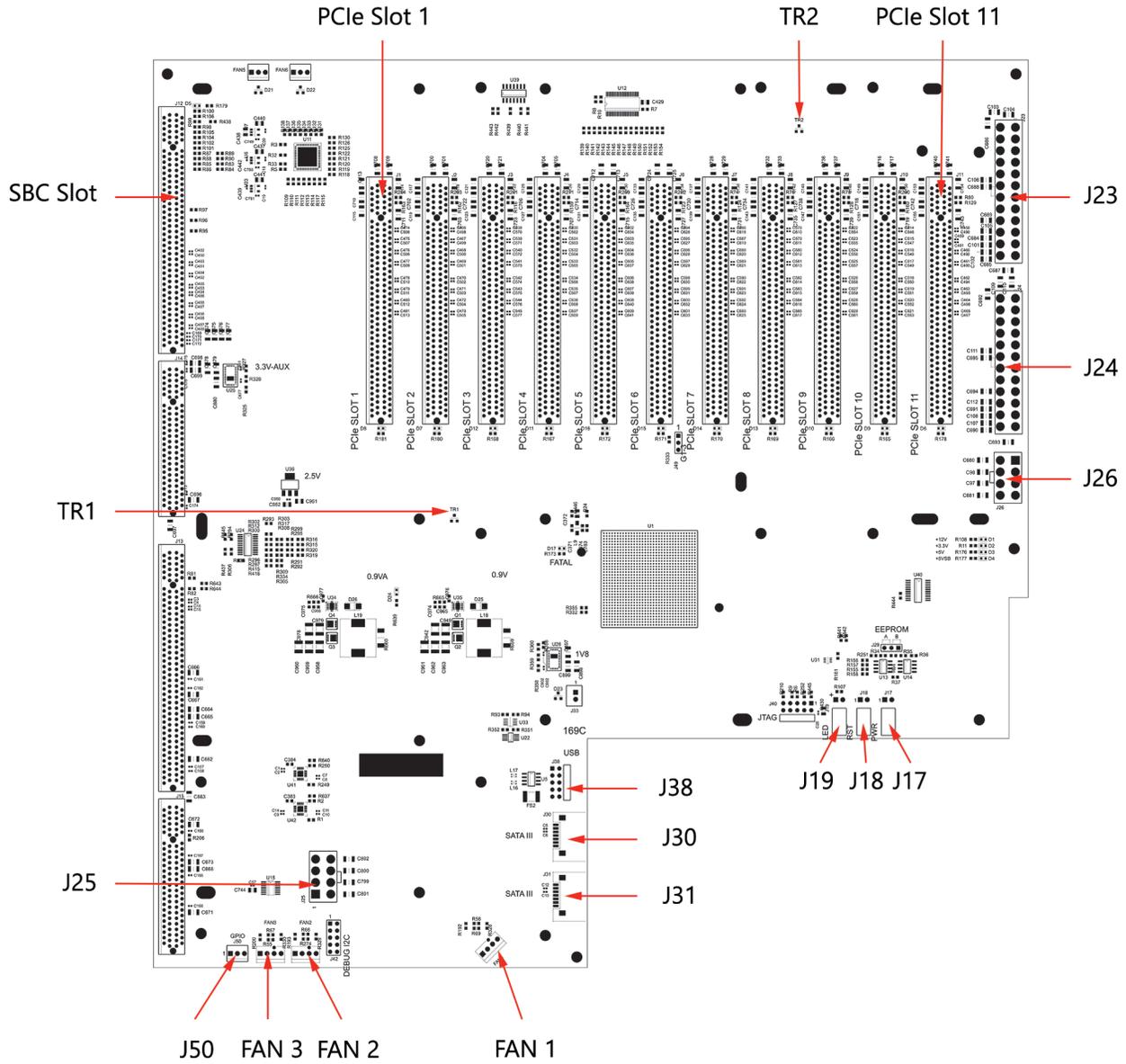
GPIO Header



Express9-G3 Specifications

Max Power (without SBC)	16W
Power requirements	Max current at +3.3V < 0.5A Max current at +12V < 0.5A Max current at +5V < 1.5A
Form Factor	PICMG1.3 Host SBC interface 1 x PCI Express (x8) expansion slot 8 x PCI Express (x4) expansion slots
ATX PSU	2 x 24 pin power connectors 1 x 8 pin AUX Power in from PSU 1 x 8 pin AUX Power out for SBC
SATA Ports	2 x ports via PICMG1.3 interface
USB Port	2 x ports via PICMG1.3 interface
Operating Temperature	0 to 35 deg C/32 to 95 deg F
Storage Temperature	-20 to 70 deg C/-4 to 158 deg F
Relative Humidity	5% to 90% non-condensing

Express11-G3



Connector	Description
J23	ATX Power in from PSU.
J24	ATX Power in from PSU.
J26	Auxiliary power in from PSU.
J25	Auxiliary power out for SBC
J17	Power on switch
J18	Reset switch
J19	Power on LED
J30,31	SATA3 connector.
J38	USB 2 header.
J50	GPIO header.
Fan 1, 2, 3	Chassis fan connectors.
TR1, TR2	Temperature sensors.

Slot	Description	Bandwith
SBC	PICMG 1.3 Slot for SBC	x8 Gen 3
Slot 1	PCIe Slot 1	x8 Gen3
Slot 2	PCIe Slot 2	x8 Gen 3
Slot 3	PCIe Slot 3	x8 Gen 3
Slot 4	PCIe Slot 4	x8 Gen 3
Slot 5	PCIe Slot 5	x8 Gen 3
Slot 6	PCIe Slot 6	x8 Gen 3
Slot 7	PCIe Slot 7	x8 Gen 3
Slot 8	PCIe Slot 8	x8 Gen 3
Slot 9	PCIe Slot 9	x8 Gen 3
Slot 10	PCIe Slot 10	x8 Gen 3
Slot 11	PCIe Slot 11	x8 Gen 3

All PCIe slots use a physical x16 connector and therefore accepts any PCIe board type.

Express11-G3 LED's

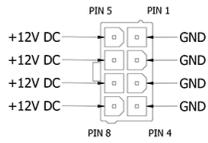
The Express11-G3 has an LED for each PCI Express slot and the PICMG1.3 SBC slot. The LED's indicate the following:

D1	ON = +12V supply present
D2	ON = +3.3V supply present
D3	ON = +5V supply present
D4	ON = +5V Standby supply present
D5	ON = PICMG link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D8	ON = PCIe Slot 1 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D7	ON = PCIe Slot 2 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D12	ON = PCIe Slot 3 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D11	ON = PCIe Slot 4 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D16	ON = PCIe Slot 5 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D15	ON = PCIe Slot 6 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D14	ON = PCIe Slot 7 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D13	ON = PCIe Slot 8 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D10	ON = PCIe Slot 9 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D9	ON = PCIe Slot10 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D6	ON = PCIe Slot11 link speed = G3, FLASH-FAST = G2, FLASH-SLOW = G1
D17	ON= PLX Fatal Error

If an LED is not illuminated, this indicates that a link has not been established, The LED's will not flash on slots where no cards are installed.

Express11-G3 Connectors

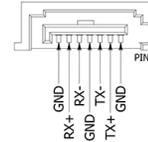
Auxiliary Power Connectors



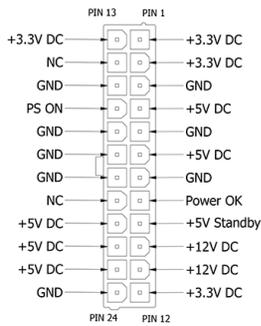
Front Panel Connectors



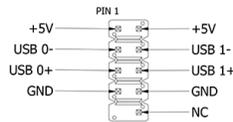
SATA3 Connectors



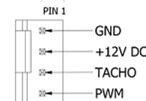
ATX Power Connector



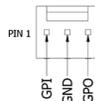
USB Header



Chassis Fan Headers



GPIO Header



Express11-G3 Specifications

Max Power (without SBC)	25W
Power requirements	Max current at +3.3V < 0.5A Max current at +12V < 0.5A Max current at +5V < 4A
Form Factor	PICMG1.3 Host SBC interface (x8 PCIe) 11 x PCI Express (x8) expansion slot
ATX PSU	2 x 24 pin power connectors 1 x 8 pin AUX Power in from PSU 1 x 8 pin AUX Power out for SBC
SATA Ports	2 x ports via PICMG1.3 interface
USB Port	2 x ports via PICMG1.3 interface, USB 2.0
Operating Temperature	0 to 35 deg C/32 to 95 deg F
Storage Temperature	-20 to 70 deg C/-4 to 158 deg F
Relative Humidity	5% to 90% non-condensing

We are continuously developing the technology used within our product ranges delivering outstanding innovative solutions, therefore the specification may change from time to time.

Warranty Statement

Datapath provides a return to manufacturer warranty on all its products for a standard 36 month period. It is important that RMA procedures are followed prior to products being returned as often issues can be resolved quickly without the need for products being returned.

RMA Returns Policy

If your Datapath product is not working as you expect, we recommend that you contact Datapath Ltd in the first instance for support, since many issues that may first appear as hardware faults, are actually installation or set-up problems and can normally be resolved without having to ship any hardware back to us. This route is therefore often the quickest, easiest and cheapest way of solving the problems that you are experiencing. Please email support@datapath.co.uk including as much detail regarding the failure as possible (for example: system description, signal types, input or output resolutions and any other relevant background information).

It is essential for you to know the serial number of the product(s) when contacting us.

If it appears that the fault is most likely to be hardware related, please email rma@datapath.co.uk stating the serial number and as much additional information regarding the nature of the failure as possible. Detailed explanation of the fault will help us to better identify the problem and will direct additional focused testing if necessary. We will then issue an "RMA Number" to you.

At the time that the "RMA Number" is issued we will inform you of the warranty status of the product and the cost of the repair, if appropriate - see paragraph (b) below. The product should then be returned, at your cost, to Datapath Ltd following the steps below.

There are 4 possible scenarios when a product is returned to us:

- (a) The product is in warranty and is either found to be genuinely faulty or no fault is found. In these cases, the product will be repaired as necessary, or replaced by a new or previously repaired product, and returned to you at our cost.
- (b) The product is out of warranty and is found to be faulty. The product if possible will be repaired or replaced at fixed cost, as stated in the RMA authorisation email. To cover this payment, you will be required to either provide a Purchase Order or Credit Card details, when the product is returned to us. (However, we will not issue an invoice or charge the credit card until the repair has been completed and is about to be returned to you)
- (c) The product is in warranty but is found to be damaged by mis-use. This will be treated as (b) above.
- (d) The product is out of warranty and is obsolete. In the unlikely situation that the product can be neither repaired nor replaced, because some of its components are obsolete and we have no swap-out stock left, then the product will either be returned to you, or disposed of at your request, with no charge.

PLEASE NOTE: Datapath will not accept responsibility for the safety, integrity or security of any programmes, data or other content held on hard drives or any other type of rewritable media which is sent to us either separately or as part of any equipment returned to us for repair or for any other purpose. Customers are advised to take back-ups of anything that they deem to be valuable or important before returning the equipment to us and anything which is confidential should be erased from the media before it's returned.

Once the RMA Number has been issued, you need to raise your Purchase Order, or supply your credit card details, and return the product to: Datapath Ltd, Bemrose House, Bemrose Park, Derby DE21 6XQ, United Kingdom - securely packed and with the RMA Number clearly displayed on the outside of the box. To prevent unnecessary carriage and handling please only send back products or accessory items you believe to be faulty.

In the case of paragraph (c), the fixed charge will be levied after we have seen the product and identified the misuse. In this case we will request you to issue a purchase order or provide credit card details before any repairs are completed.

Our policy is to return the repair (or swap-out) to you within 10 UK business days of receipt.

Certification and Compliances

CE

EU- Class A Declaration of Conformity

Datapath Ltd declares that the Express9, Express9-G3 and the Express11-G3 complies with the essential requirements and other relevant provisions of Directives 2014/30/EU, 2014/35/EU and 2011/65/EU.

A copy of our Declaration of Conformity is available on request:

Datapath Ltd
Bemrose House
Bemrose Park
Wayzgoose Drive
Derby, DE21 6XQ
United Kingdom

FCC

These devices comply with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.



Caution. Changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

Disposal

At the end of life all Datapath products should be disposed of as per local laws and regulations dictate. In the UK contact Datapath to arrange disposal. Our WEEE registration number is WEEE/AA0005ZR.

Technical Support

Registered users can access our technical support using email and the Support Enquiry Form on our website, usually with a response within 24 hours (excluding weekends).

Email

Send an email to support@datapath.co.uk with as much information about your system as possible. To enable a swift response our support team will need to know the following details:

- Serial number of your backplane.
- Details of any SBC including any installed PCIe devices
- The exact nature of the problem - please be as specific as possible.

Disclaimer/Copyright Statement

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