

Edgecore Networks Corporation

Edgecore AS7300-54X

Switch Specification

Revision 1.0



OPEN
Compute Project

Revision History

Revision	Date	Author	Description
.01	2/22/2017	Jeff Catlin	Initial Draft
1.0	3/6/2017	Jeff Catlin	Initial Release

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Description	Manufacturer	Part Number
X86 Broadwell-DE CPU	Intel	XeonD-1548
SDRAM 4GB SO-DIMM w/ECC (x2 DDR4)	Micron	MTA18ASF1G72HZ-2G1A1
USB to NAND Flash 8GB	ATP	AF8GSSGH-AC2
SPI NOR Flash 8MB	Winbound	W25Q128FVSI
TPM	ST Microelectronics	ST33ZP24AR28PVSP
mSATA Connector	TE Connectivity	1775838-2
M.2 connector	Concraft	213BAAA42FA
BMC Connector	FOXCONN	AS0A626-H2S6-7H
Ethernet Controller	Intel	WGI210AT
CPLD	Altera	5M1270ZF256C5N
10GeB SPI Flash	Winbond	W25Q32FVSSI
I210 SPI flash	Winbond	W25Q16DVSSI
T2080 CPU	Freescall	T2080NSN8TTB
SDRAM (8GB per channel)	UNIGEN	UG10U7211P8UU-BDE *2
USB to NAND Flash 8GB	ATP	AF8GSSGH-AC2
NOR Flash 128MB	MICRON	JS28F00AM29EWHA
Trusted Platform Module (TPM)	ST	ST33ZP24AR28PVSK
mSATA Connector	TE	1775838-2
M.2 connector	CONCRAFT	213BAAA32FA
SD Connector	CVILUX	CSD-09A001D
X86 Rangeley CPU	Intel	C2538 – 2.4GHz 3.0V
SDRAM 4GB SO-DIMM w/ECC (x2)	Innodisk	M3D0-4GHS2LPC 4GB 1.35V
USB to NAND Flash 8GB	ATP	AF8GSSGH-AC1
SPI NOR Flash 8MB (x2)	Winbound	W25Q64FVSSI
Trusted Platform Module (TPM)	STMicroelectronics	ST33ZP24AR28PVSP ST

FPGA	Microsemi	A2F200M3F-FGG256
mSATA Connector	TE Connectivity	1775838-2
B2B Connector	SAMTEC	BTH-060-01-F-D-RA-WT-K
Switch silicon	Broadcom	BCM56967
AC Power Supply	3Y	YM-2651YBR Front to back airflow
AC Power Supply	3Y	YM-2651YCR Back to front airflow
DC Power Supply	3Y	YM-2651VBR Front to back airflow
DC Power Supply	3Y	YM-2651VCR Back to Front airflow
Switching Silicon	Broadcom	BCM566960
10/100/1000 PHY	Broadcom	BCM54616S
Fans	Sunon	PF40561BX-Q020-S99 (Front to Back airflow)
Fans	Sunon	PF40561BX-Q010-S99 (Back to front airflow)

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This specification is being submitted under the Open Compute Project Hardware License

Scope

This document outlines the technical specifications for the Edgecore AS7300-54X Open Switch Platform submitted to the Open Compute Foundation.

Overview

This document describes the technical specifications of the AS7300-54X Top of Rack/Leaf switch designed by Edgecore Networks. The AS7300-54X is a cost optimized switch design focused on Leaf/Top of Rack deployments which support 10/25Gb server connectivity and providing 40/50G/100Gbps uplinks to the distribution/Spine layer of the network. The switch supports forty eight SFP28 ports that each operate at 10Gb or 25Gb and six QSFP28 ports that operate at 10/25/40/50/100Gb each .

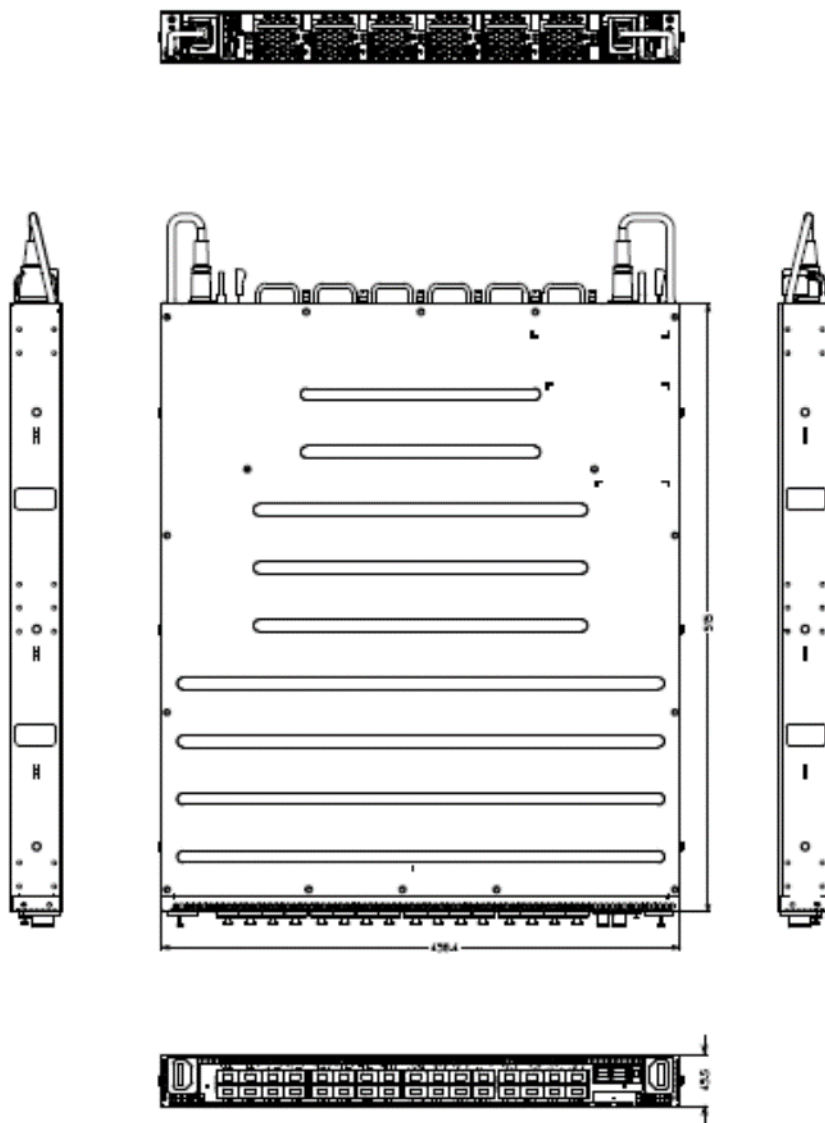
The AS7300-54X is a PHY-Less design with the SFP28 and QSFP28 connections directly attaching to the Serdes interfaces of the Broadcom BCM56967 Tomahawk switching silicon providing the lowest cost, latency, and power. AS7300-54X supports traditional features found in Top of Rack switches such as:

- Redundant field replaceable power supply and fan units
- Support for “Front to Back” or “Back to Front” air flow direction
- Supports a modular CPU card that allows flexibility in the CPU and/or memory configurations that can be offered.
- The AS7300-54X is a 1RU design that supports standard 19” rack deployments as well as standard 21” Open Rack deployments.

Physical Overview

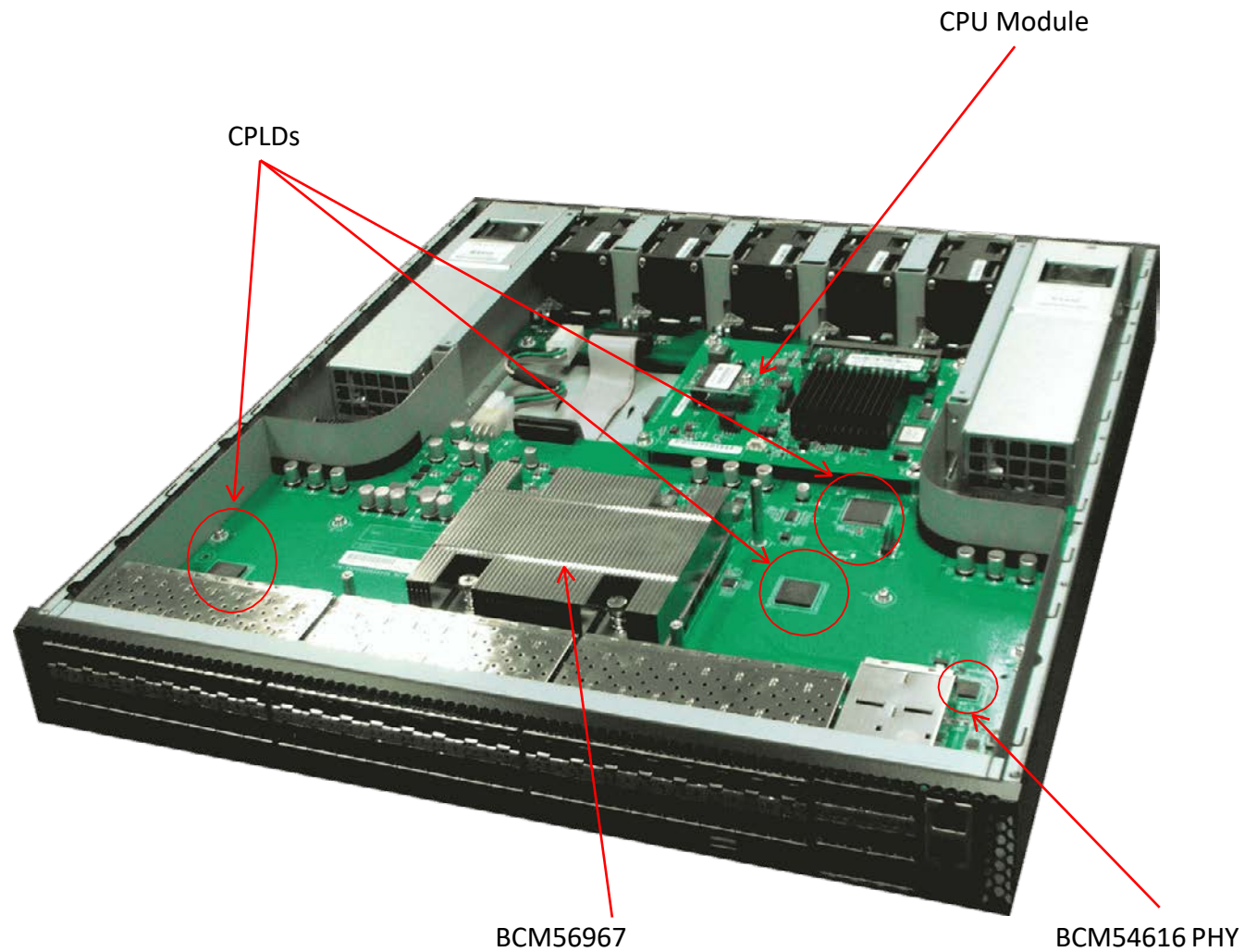
Dimensions

	Inches	Millimeters
Length	20.28	515
Width	17.26	438.4
Height	1.70	43.25

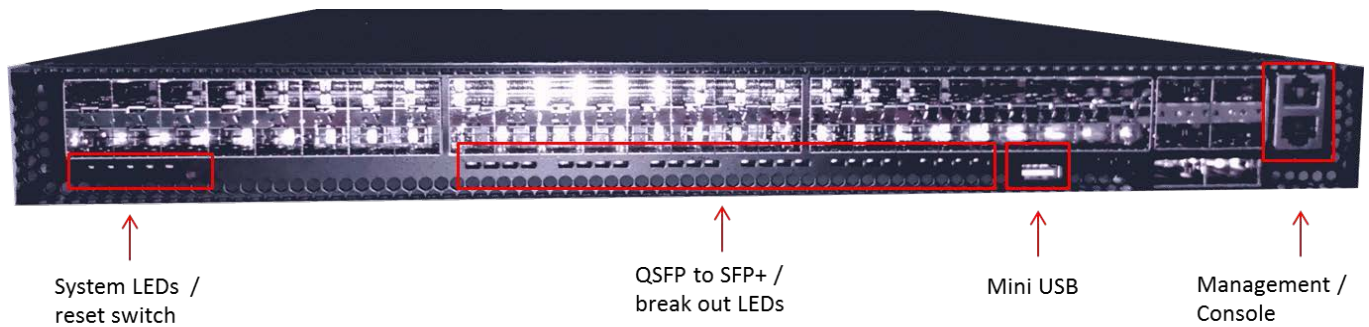


Top View

The top view of the AS7300-54X shows the PCBs and associated components in the AS7300-54X system



Front View



The front panel view of the AS7300-54X includes the following key components:

- Forty Eight SFP28 Ports
 - o Capable of operating at 10Gb/25Gb Ethernet speeds with standard SFP+/SFP28 modules
- Six QSFP28 ports
 - o Capable of operating at 4x10Gb, 1x40Gb, 4x25Gb, 2x50Gb, or 1x 100Gb Ethernet with appropriate QSFP+/28 modules and/or break out cables.
- System LEDS
- Rest Switch
- QSFP28 Break out LEDS
- Mini USB 2.0 type “A” port
 - o Used for optional external storage
- RJ45 RS232 Console management port
 - o Supports asynchronous mode with the default being eight data bits, one stop bit, no parity
- RJ45 10/100/1000 Ethernet management port
 - o Connected directly to the system CPU

Front Panel LED Definitions

LED Name	Description	State
PSU1	Led to indicate status of Power Supply 1	Green - Normal Amber - Fault Off – No Power
PSU2	Led to indicate status of Power Supply 1	Green - Normal Amber - Fault Off – No Power
Diag	LED to indicate system diagnostic test results	Green – Normal Amber – Fault detected
FAN	LED to indicate the status of the system fans	Green – All fans operational Amber – One or more fan fault
LOC	LED to indicate Location of switch in Data Center	Amber Flashing – Set by management to locate switch Off – Function not active
SF28 LEDS	LED built into SFP+ cage (one per SFP+ port) to indicate port status	On Green/Flashing – Port has link at 25G flashing indicates activity On Amber/Flashing Port has link at 10G flashing indicates activity Off – No Link
QSFP28 Port LED	Each QSFP28 port has one LED to indicate status	On Green/Flashing – Port has link at 100G flashing indicates activity On Amber/Flashing – Port has link at 25G flashing indicates activity On Blue/Flashing – Port has link at 40G flashing indicates activity On Purple/Flashing – Port has link at 10G flashing indicates activity Off - No link
QSFP28 Break out LEDs	Each QSFP28 port has four LEDs to indicate status of the individual lanes in the port	Purple : 10G Break out mode (Per port/Per Lane) Amber : 25G Break out mode (Per port/Per Lane) OFF : 100G (Per port/Per Lane) OFF : 40G (Per port/Per Lane)
OOB LED	LED to indicate link status of 10/100/1000 management port	On Green - port has link Green Flashing – Link with activity Off – No link

SFP28 Interface Module support

10Gb SFP+ Modules	Standard 10Gb SFP+ modules including but not limited to: 10GBASE-SR, 10GBASE-LR, 10GBASE-ER, AOC Cables
25Gb SFP28 Optical Modules	Standard 25Gb SFP28 modules including but not limited to: 25GBASE-SR, AOC Cables
Direct Attach Copper (DAC)	Standard DAC cables including but not limited to Passive cable up to 5m

QSFP28 Interface Module Support

QSFP+ Optical Modules	Standard 40Gb QSFP+ modules including but not limited to: 40GBASE-SR4, 40GBASE-LR4, 40GBASE-ER, AOC Cables
QSFP28 Optical Modules	Standard 100Gb QSFP28 modules including but not limited to: 100GBASE-SR4, 100GBASE-LR4, 100GBASE-ER4, AOC Cables
Direct Attach Copper (DAC)	Standard DAC cables including but not limited to: Passive cable up to 5m

Console Port

The console port interface conforms to the RJ45 electrical specification.

The interface supports asynchronous mode with default eight data bits, one stop bit, and no parity.

The unit will operate at any one of the following baud rates:

- 9600, 19200, 38400, 57600, **115200 (Default)**

Pin number	Pin name	Pin number	Pin name
1	RTS	2	UART_TXD
3		4	
5	GND	6	UART_RxD
7		8	CTS

Rear View



The rear view of the AS7300-54X includes the following key components:

- Six (5+1) redundant hot swappable fan modules
 - LED per fan module to indicate status
 - Color coding to indicate airflow direction
- Two redundant hot swappable power supply modules
 - LED per power supply to indicate status
 - Color coding to indicate airflow direction

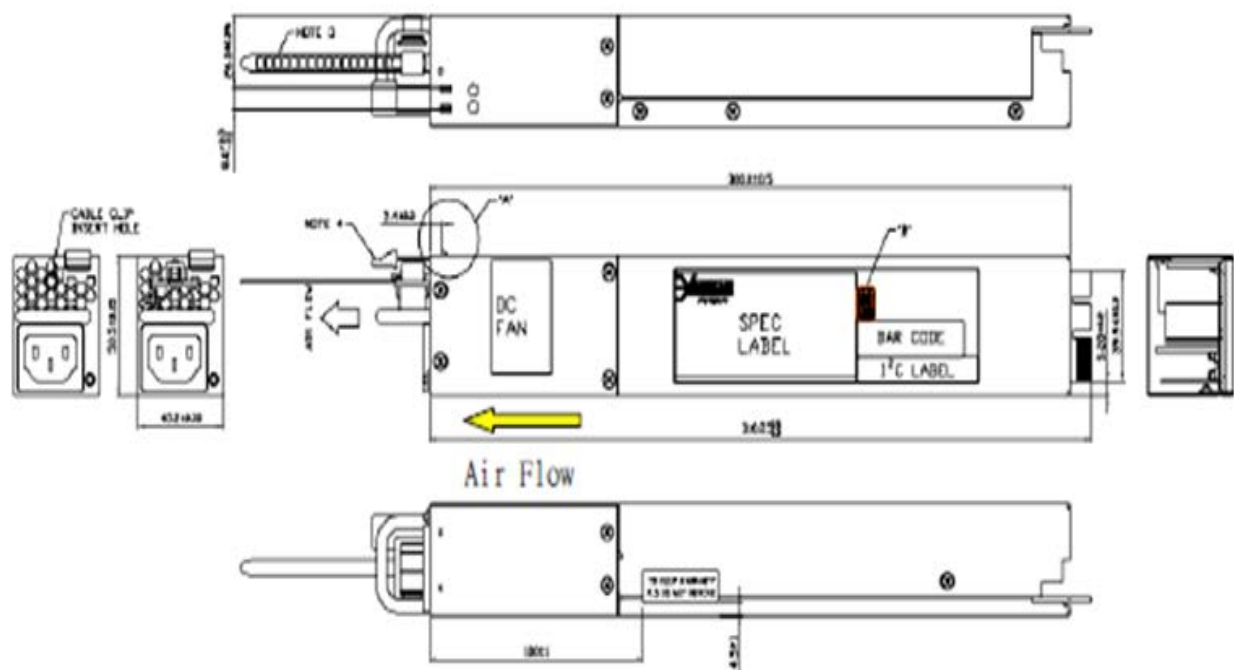
Field Replaceable Units

Power Supply Modules

The AS7300-54X supports two redundant power supply modules as listed below

3Y 650 Watt PSU: AC Input Range 90-264VAC / 47-63Hz		
- YM-2651YBR Front to back airflow - YM-2651YCR Back to front airflow		
3Y 650W PSU: 48V DC Input range 36-75Vdc		
- YM-2651VBR -Front to back airflow - YM-2651VCR -Back to front airflow		
Edge-Core 600 Watt 12V DC Module		
PSU-12V-600		
	Inches	Millimeters
Length	12.21	310.2
Width	1.58	50.5
Height	2.15	40

The casing dimension is W 50.5 mm x L 310.2 mm x H 40 mm(including gold finger)



3.
3.

Figure 2: Outline drawing

PSU Pin-Out

3.3. Pin assignment for DC output gold fingers

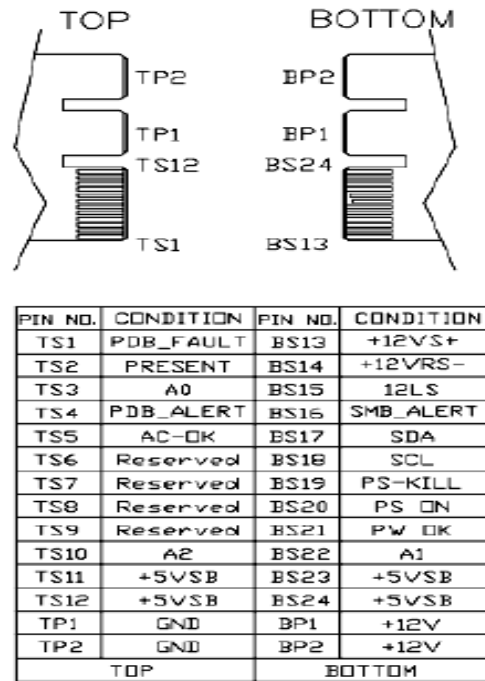
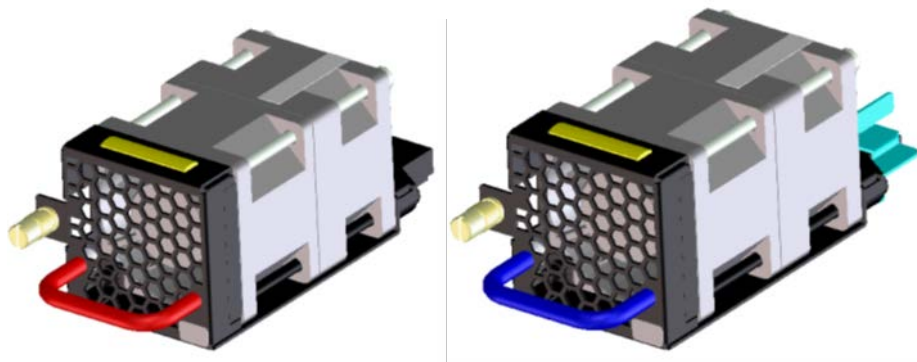


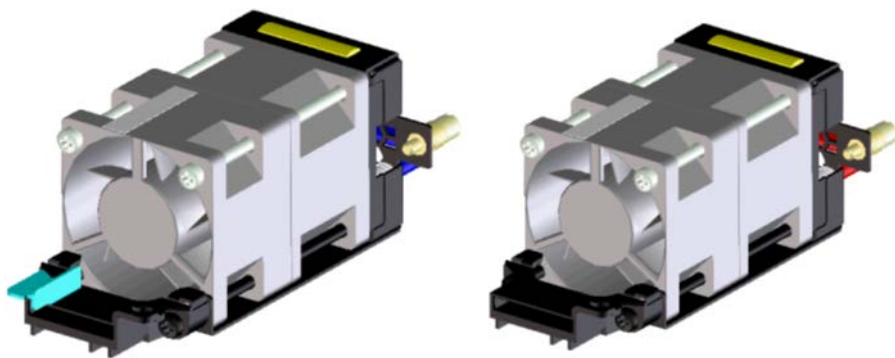
Figure 3: signal descriptions

Fan Modules

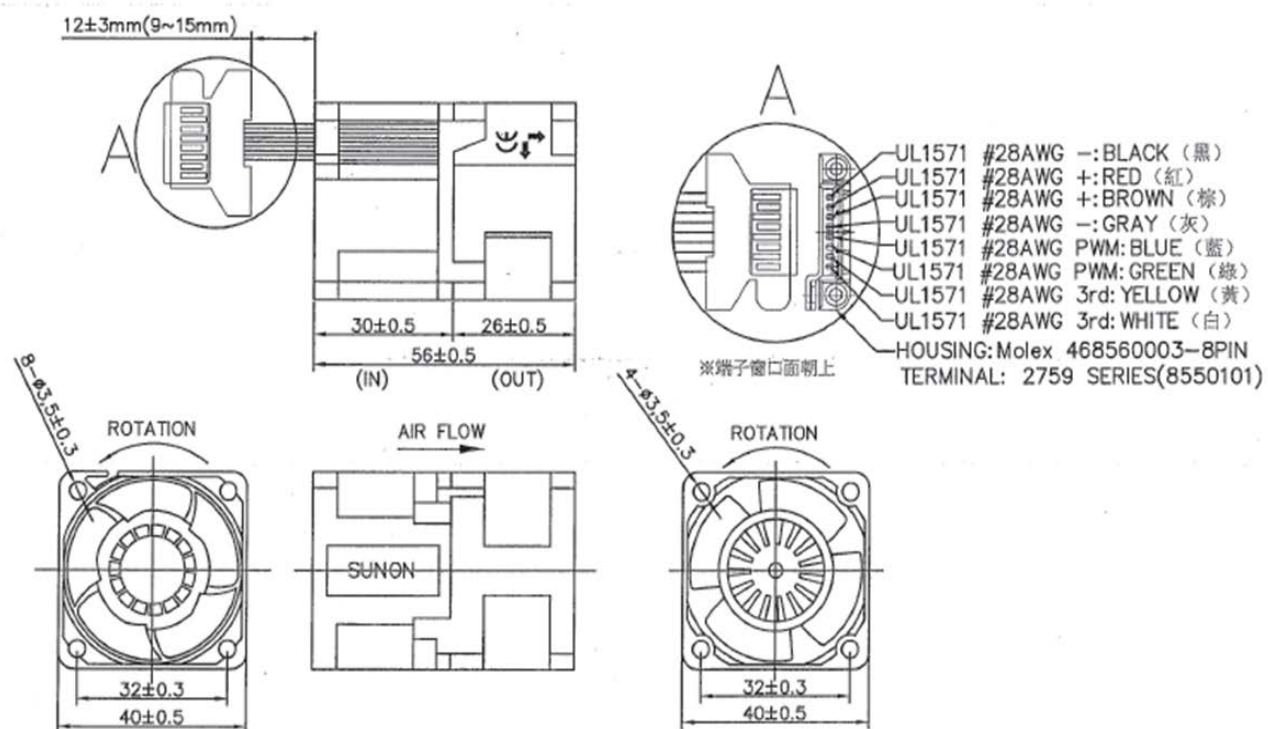
The AS7300-54X supports six individual fan modules. Each fan module supports two 40mmx40mmx54mm fans shown below.

Description	Manufacturer	Part Number
Fan – Front to back airflow	Sunon	PF40561BX-Q020-S99
Fan – Back to front airflow	Sunon	PF40561BX-Q010-S99



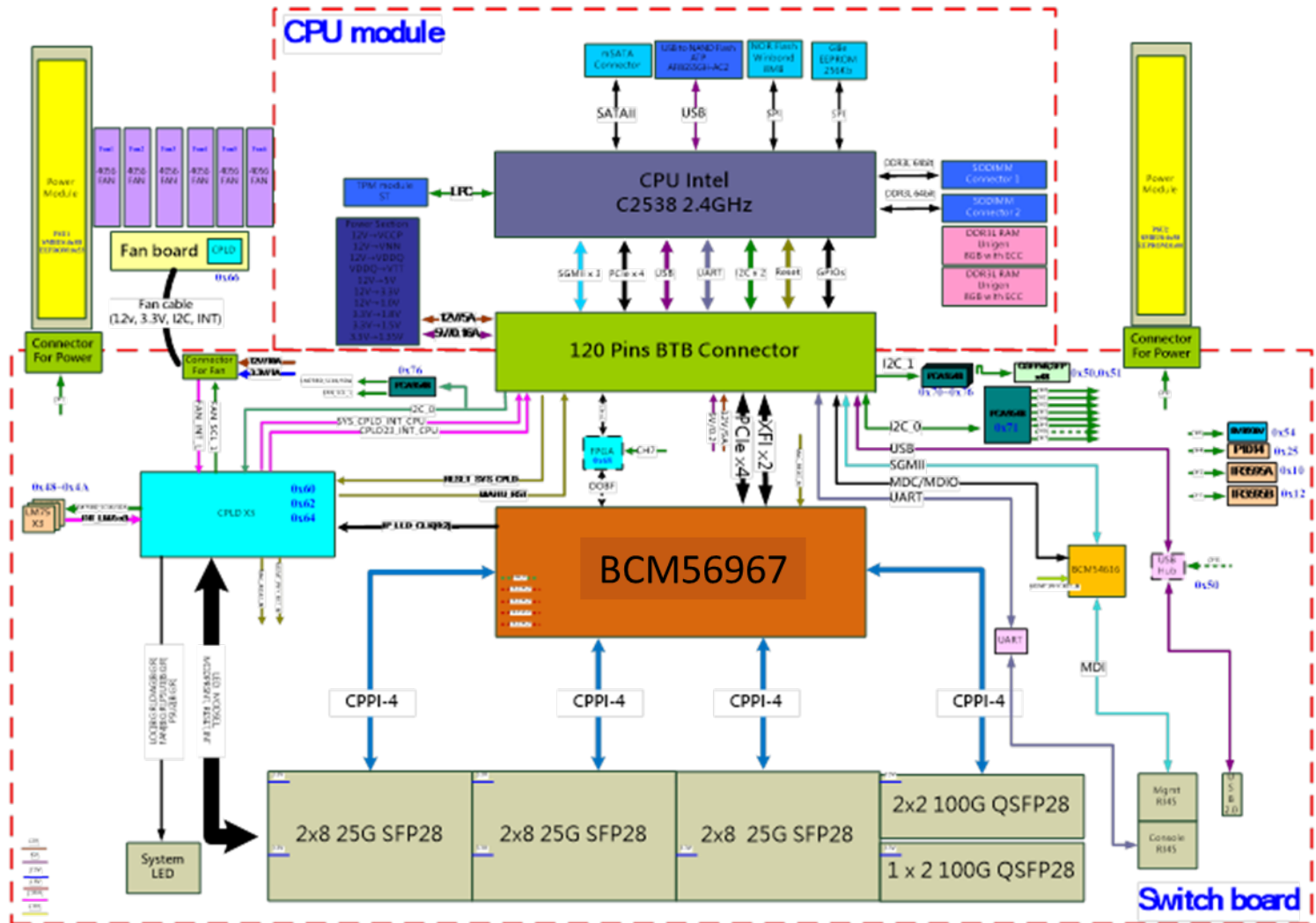


Fan Connector pinout

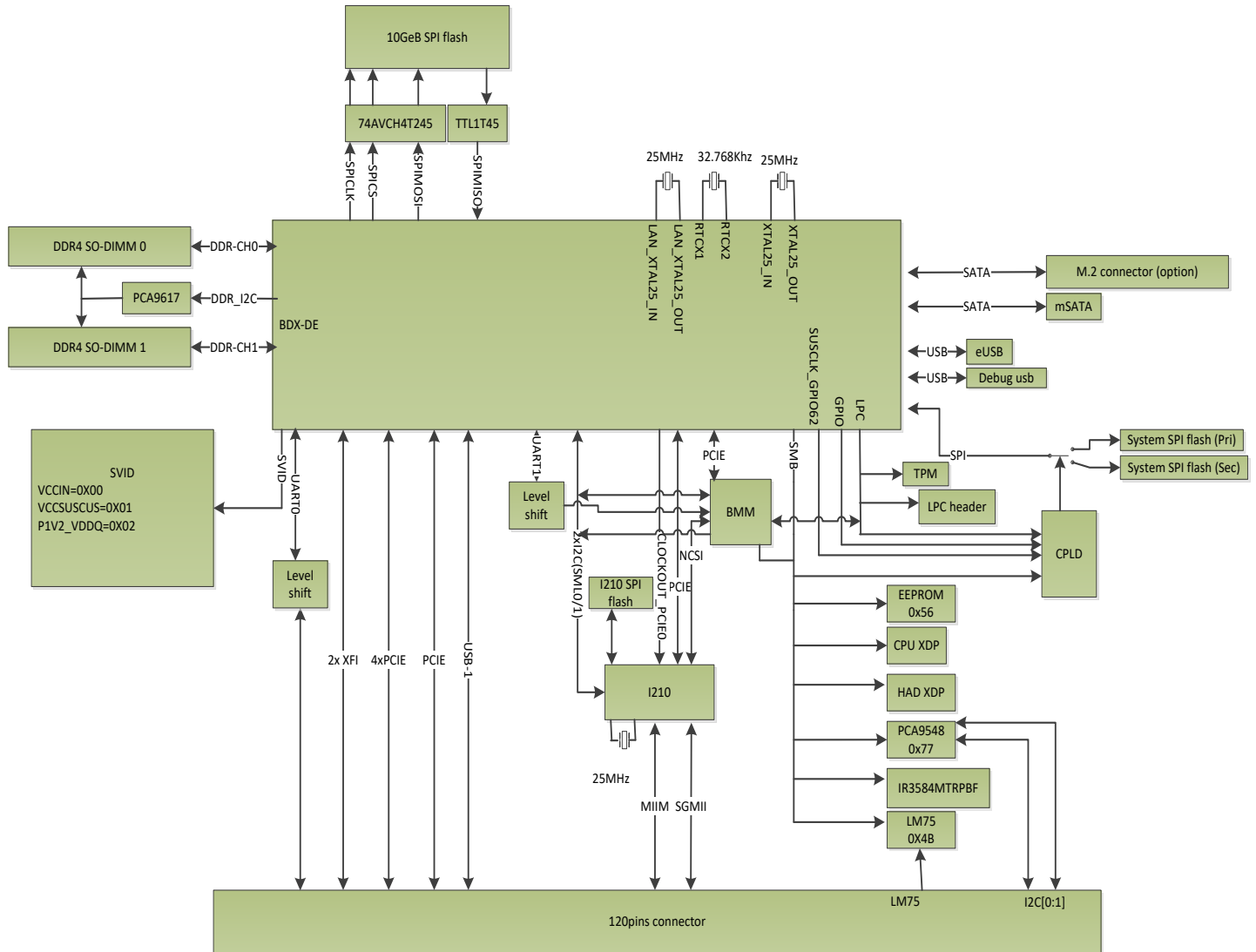


System Overview:

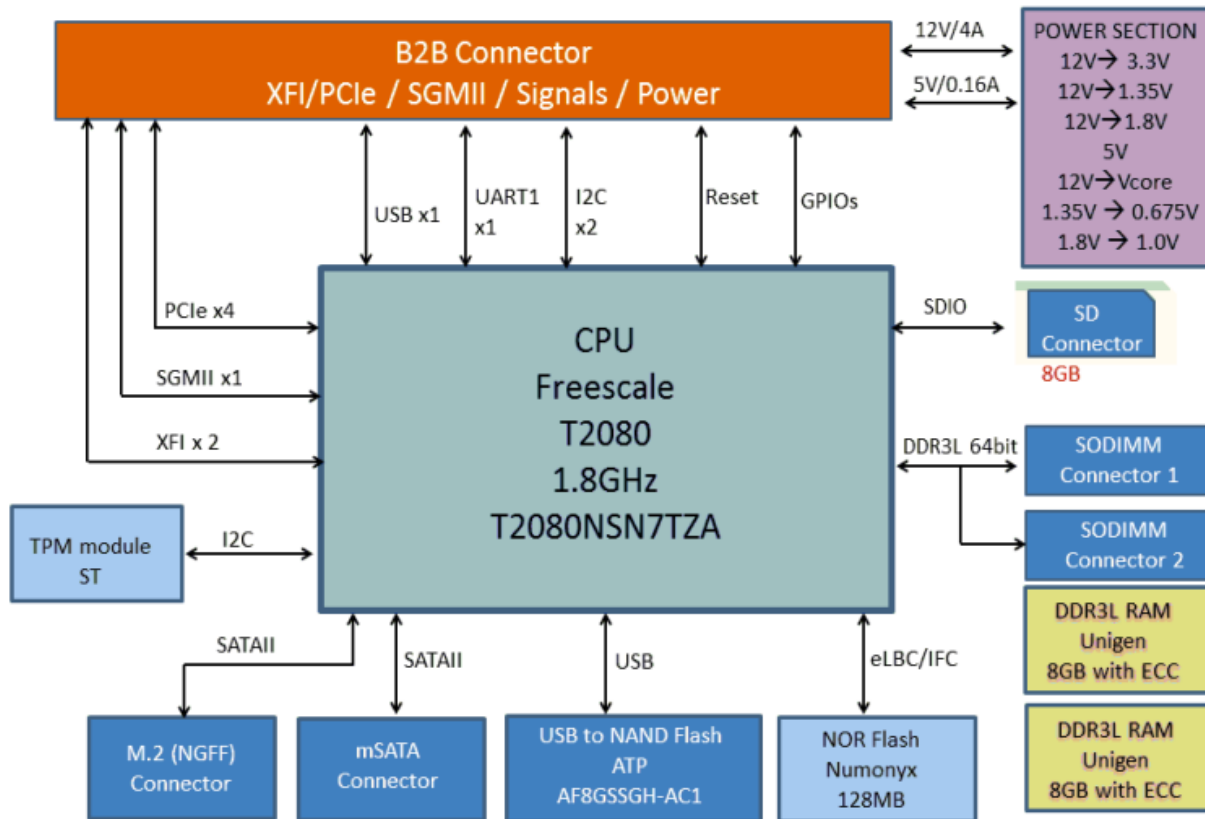
Main PCB Block Diagram



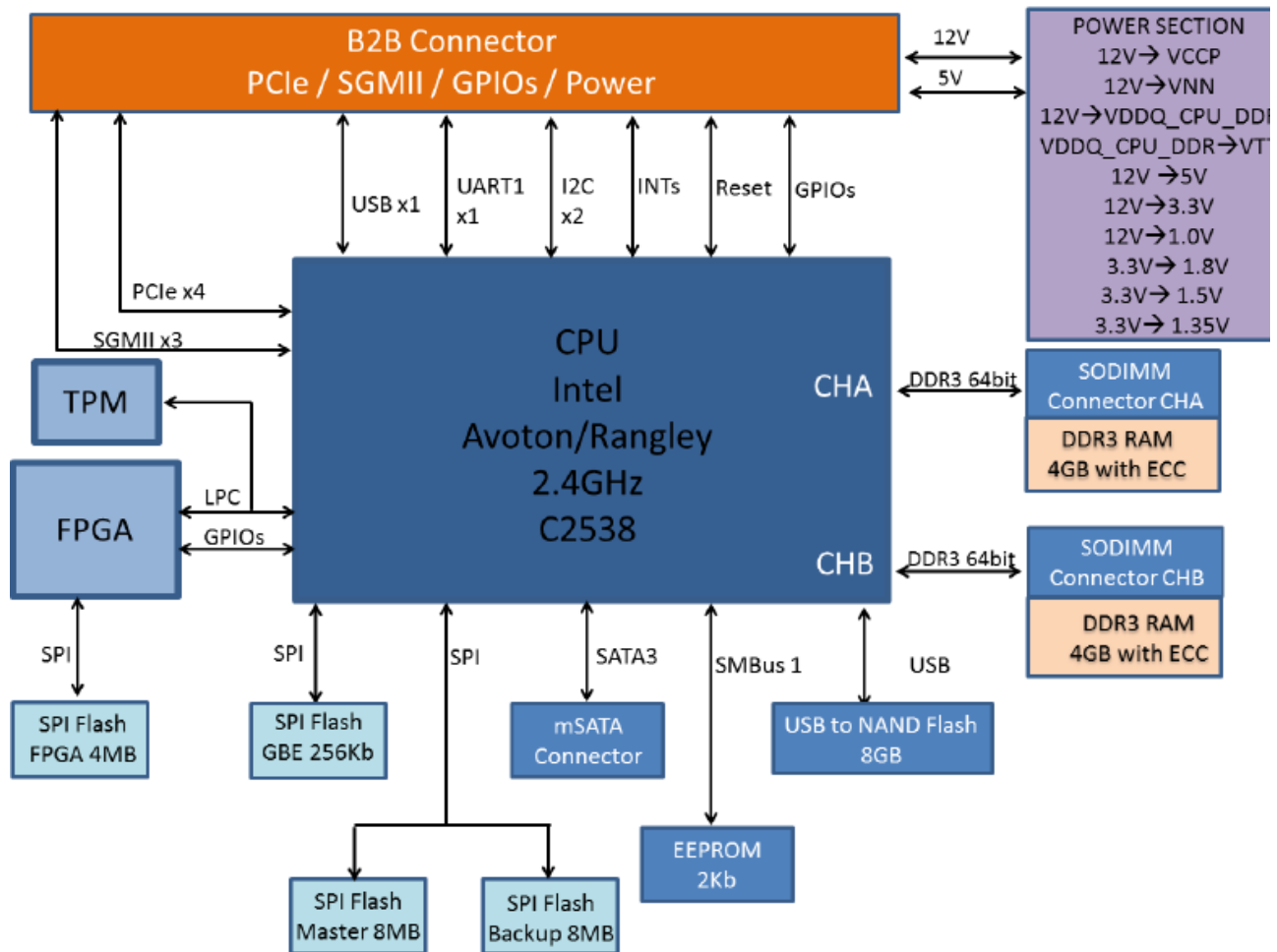
X86 Broadwell-DE CPU Module Block Diagram



T2080 CPU Module Block Diagram



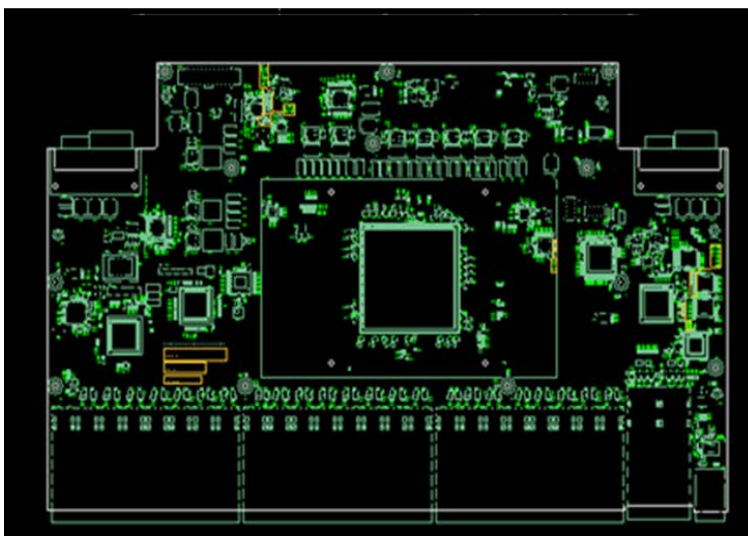
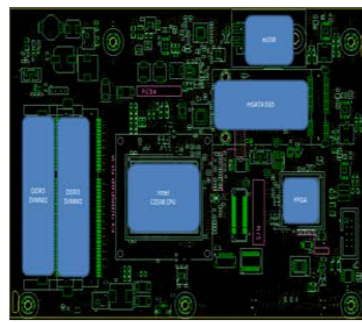
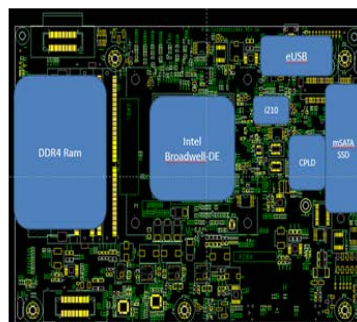
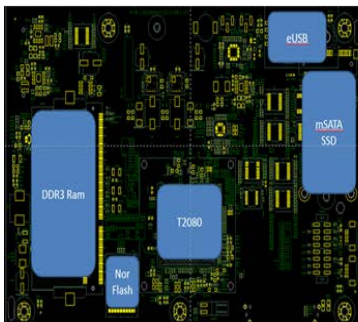
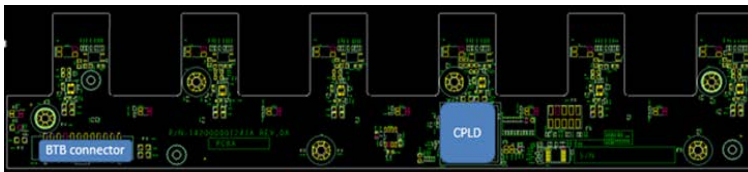
X86 Rangeley CPU Module Block Diagram



PCB Board Set

The AS7300-54X is composed of 5 unique PCB assemblies as follows:

- Main switch PCB which supports the switching silicon and all front panel connections
- Rangeley based X86 CPU module PCB which provides the control processor and associated components
- Broadwell-DE based X86 CPU module PCB which provides the control processor and associated components
- T2080 CPU module PCB which provides the control processor and associated components
- Fan PCB which provides connectivity for the 5 Fan modules in the system

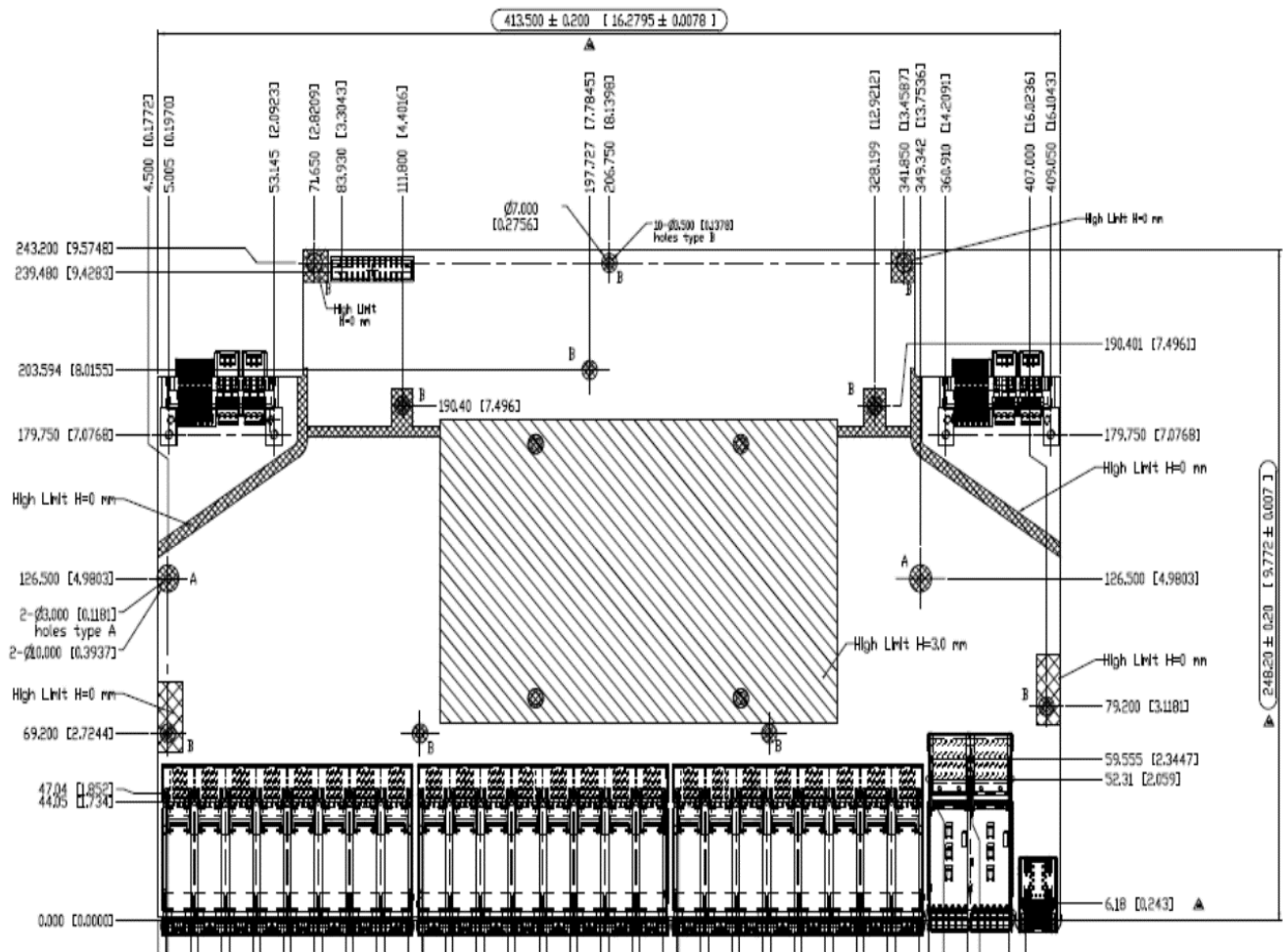


Main Switch PCB

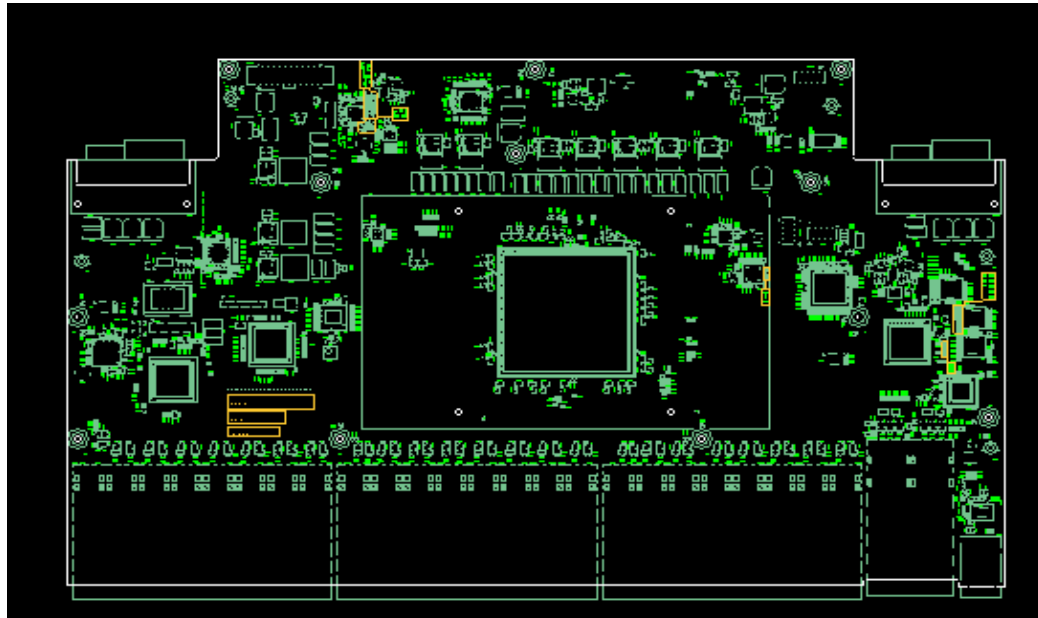
The Main Switch PCB is a fourteen layer board supporting the switching silicon, front panel networking and management ports, LEDs, and connections to other PCBs required in building the system.

Main PCB Dimensions

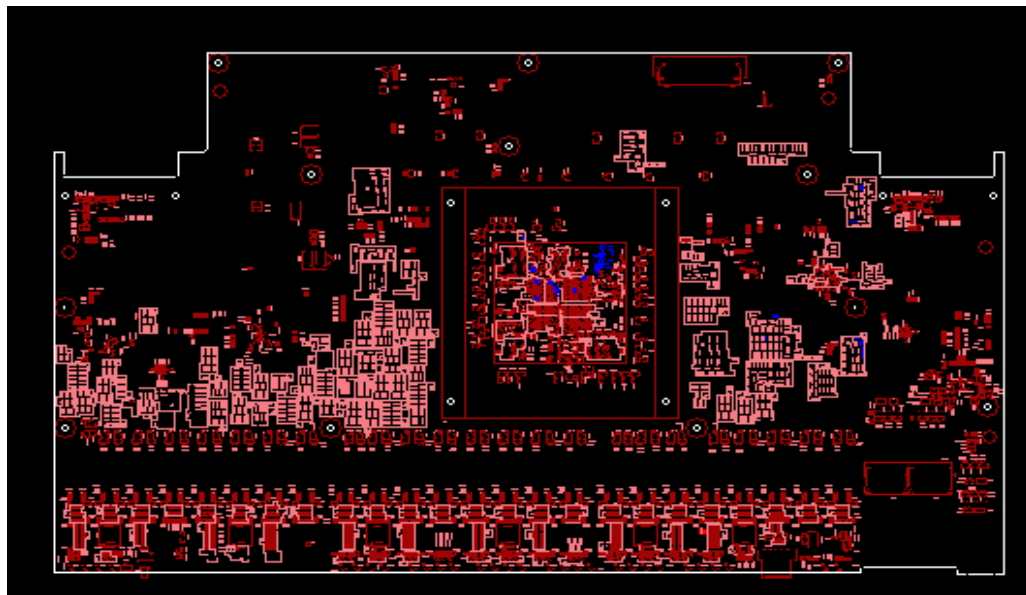
	Inches	Millimeters
Length	9.82	249.50
Width	16.28	413.50



Main PCB Top view



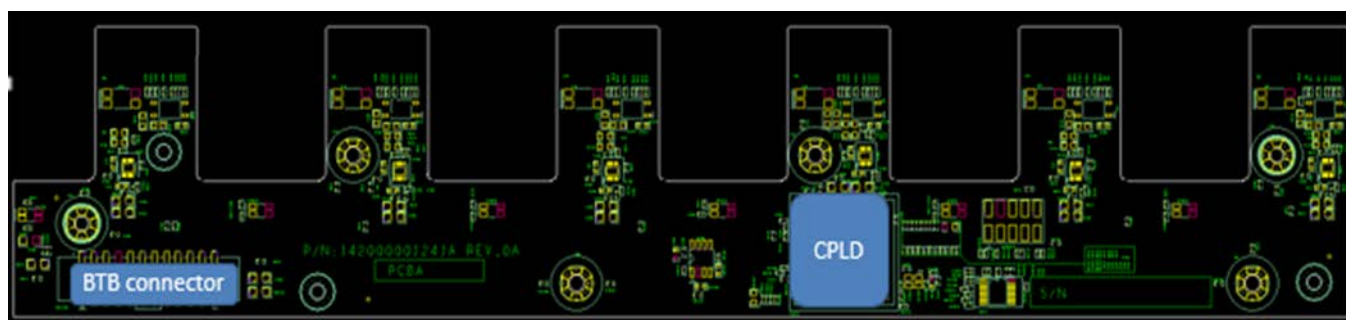
Main PCB Bottom View



Fan PCB

The Fan PCB is 4 layers and provides the power, management and connectivity for the 5 system fan modules. The Fan PCB connects to the Main Switch PCB via a small cable assembly for power and a small cable assembly for management signals.

The Fan board has a CPLD to do the fan controller function. The CPLD on the Fan board can control the Fan's PWM signal for adjust Fan speed and count the Fan's Tach signal for Fan speed reporting. CPU can read the thermal sensor to get thermal information, and then adjust Fan speed to reduce system's thermal. The Fan's CPLD had included I2C thermal watchdog to avoid system shutdown. If the register count to zero, the Fan speed will be set to high speed.



Fan PCB Dimensions

	Inches	Millimeters
Length	9.54	242.5
Width	2.40	60.9

Fan PCB major components

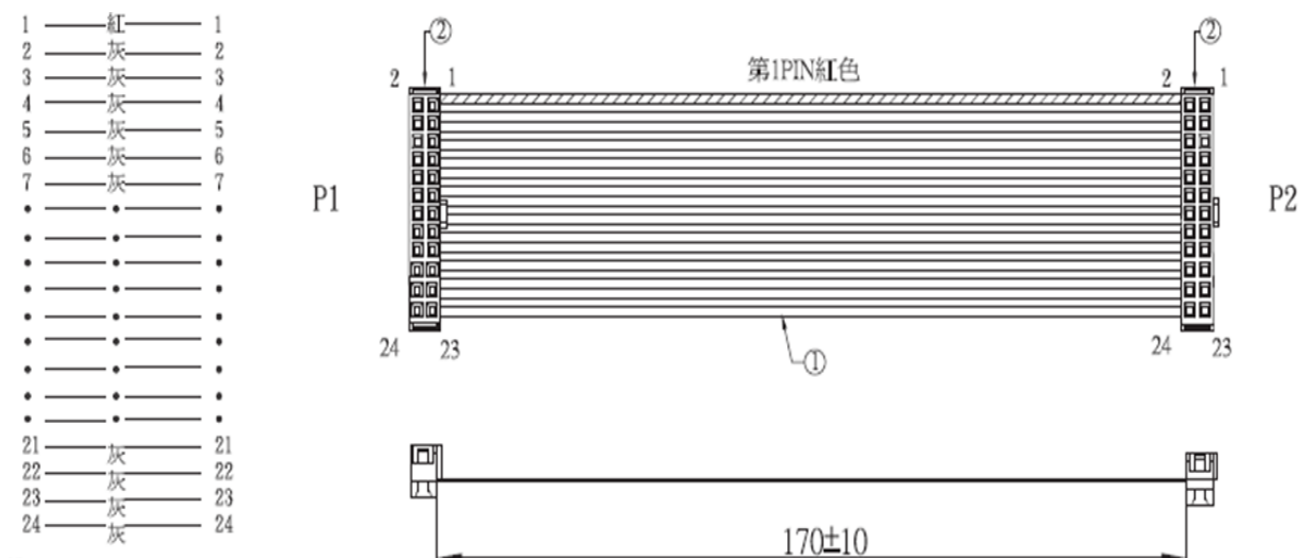
Description	Manufacturer	Part Number
B2B Connector	DONG-WEI	BHE6T0-224S4
CPLD	Altera	5M1270ZF256C5N 3.3V

Fan PCB connector pinout

Name	Type	Net Name	Description
1	power	VCC12	12V Power
2	power	VCC12	12V Power
3	power	VCC12	12V Power
4	power	VCC12	12V Power
5	power	GND	12V/ 3.3V return
6	power	GND	12V/ 3.3V return
7	power	GND	12V/ 3.3V return
8	power	VDD3P3	3.3V Power

9	out	FAN_IDLE	Enable/ disable the Fan board's I2C Master
10	in	FAN_INT_L	Fan board send intrupt
11	power	GND	12V/ 3.3V return
12	power	GND	12V/ 3.3V return
13	in	FAN_SCL_2	For Fan CPLD access switch board's thermal sensor
14	inout	FAN_SDA_1	For CPU to access Fan CPLD status
15	inout	FAN_SDA_2	For Fan CPLD access switch board's thermal sensor
16	out	FAN_SCL_1	For CPU to access Fan CPLD status
17	power	GND	12V/ 3.3V return
18	power	GND	12V/ 3.3V return
19	power	GND	12V/ 3.3V return
20	power	GND	12V/ 3.3V return
21	power	VCC12	12V Power
22	power	VCC12	12V Power
23	power	VCC12	12V Power
24	power	VCC12	12V Power

Fan Cable Pinout

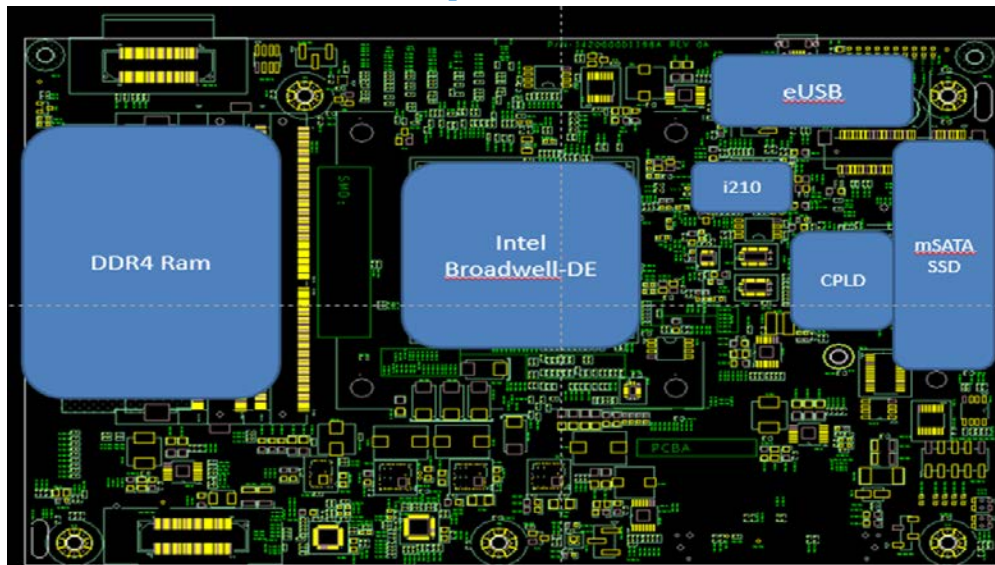


X86 Broadwell-DE CPU Module PCB

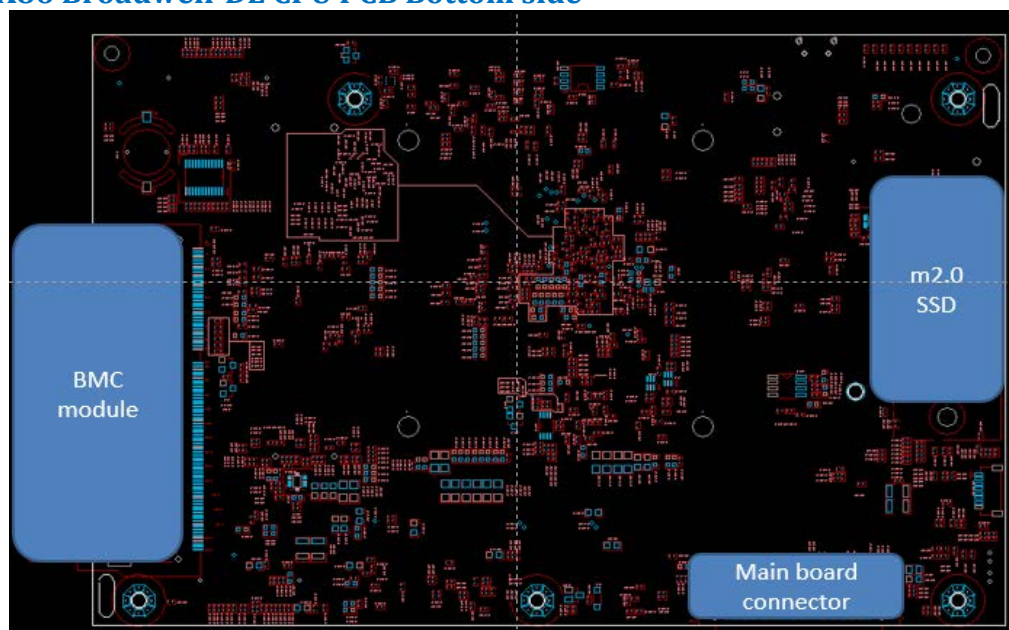
The x86 CPU module is a 12 layer PCB and supports the communication processor and associated components for the CPU subsystem. The communication processor utilized is an Intel® Xeon® processor D series communication processor. The Intel® Xeon® processor D product family is the first Intel® Xeon® SoC optimized to deliver Intel Xeon processor performance and enhanced total cost of ownership (TCO) for hyperscale workloads.

The Intel® Xeon® processor D product family supports high levels of I/O integrations, including 10GbE. The Intel Xeon processor D product family also includes data center processor features such as error correcting code (ECC). With high levels of I/O integration and energy efficiency.

X86 Broadwell-DE CPU PCB Top side



X86 Broadwell-DE CPU PCB Bottom side



X86 Broadwell-DE CPU PCB Dimensions

	Inches	Millimeters
Length	7.32	186.02
Width	4.86	123.5

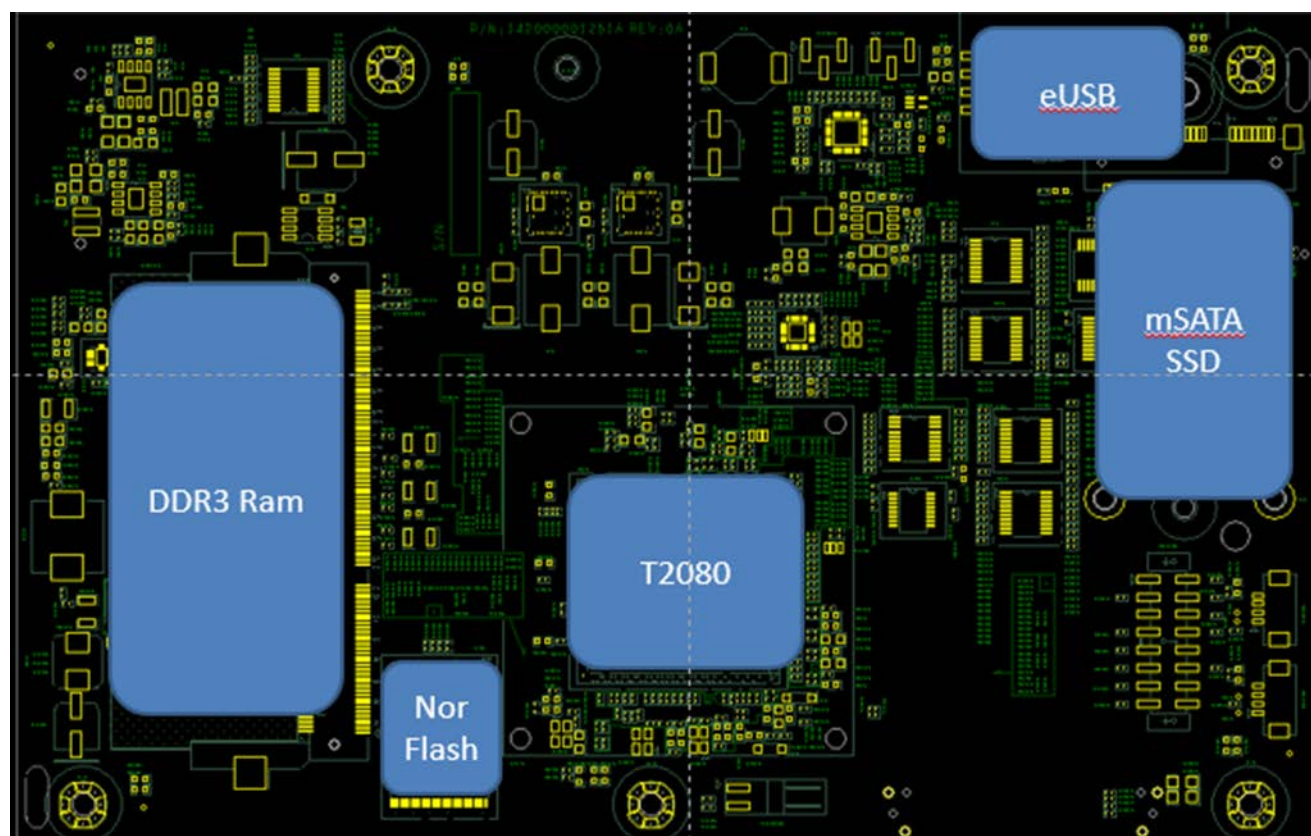
X86 Broadwell-DE CPU PCB major components

Description	Manufacturer	Part Number
CPU	Intel	XeonD-1548
SDRAM 8GB per channel	Micron	MTA18ASF1G72HZ-2G1A1
USB to NAND Flash 8GB	ATP	AF8GSSGH-AC2
SPI NOR Flash	Winbond	W25Q128FVSI
Trusted Platform Module (TPM)	ST	ST33ZP24AR28PVSP
mSATA Connector	TE	1775838-2
M.2 connector	Concraft	213BAAA42FA
BMC Connector	FOXCONN	AS0A626-H2S6-7H
B2B Connector	SAMTEC	BTH-060-01-F-D-RA-WT-K
Ethernet Controller	Intel	WGI210AT
CPLD	Altera	5M1270ZF256C5N
10GbE SPI Flash	Winbond	W25Q32FVSSI
I210 SPI flash	Winbond	W25Q16DVSSI

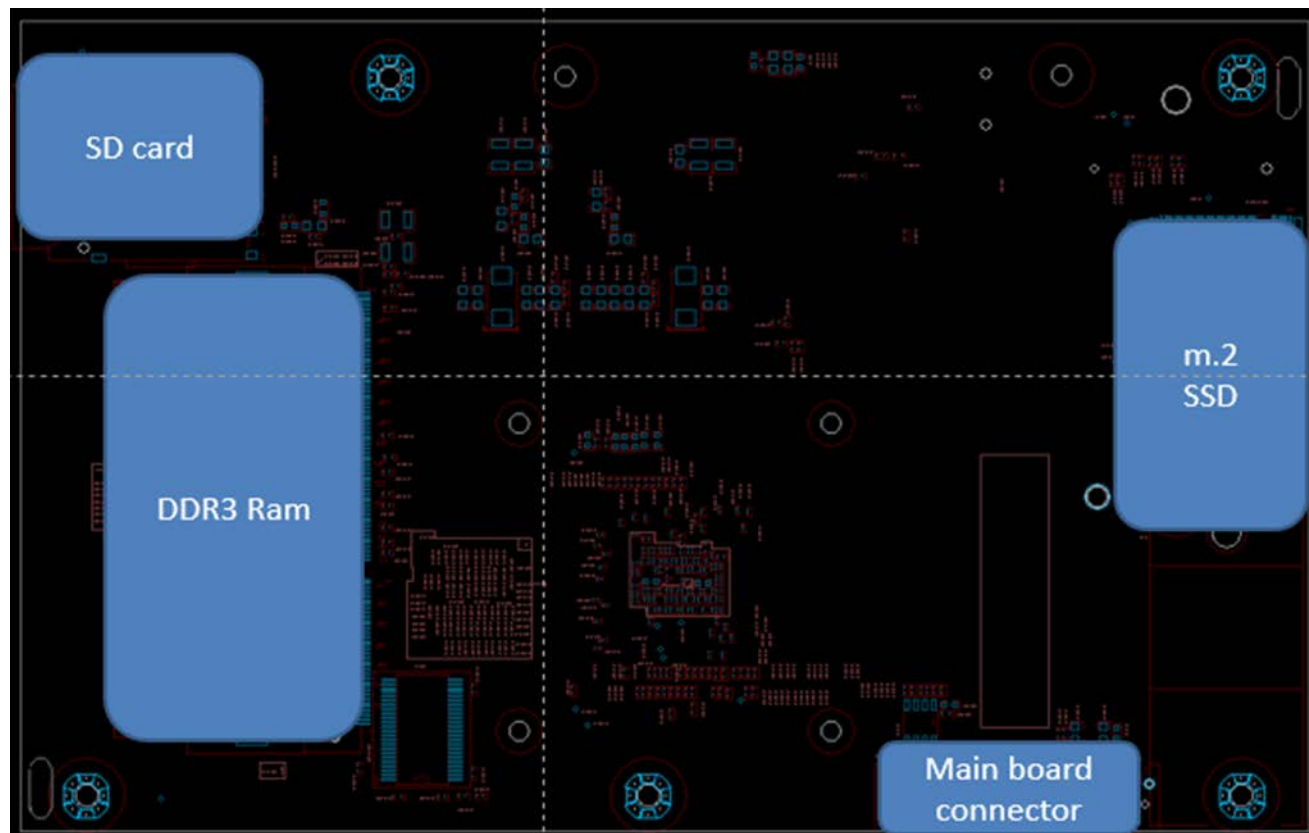
T2080 CPU Module PCB

The T2080 CPU module is an 8 layer PCB and supports the communication processor and associated components for the CPU subsystem. The communication processor utilized is the Freescale Semiconductor T2080 QorIQ processor. The T2080 QorIQ integrated multicore communications processor combines 4 dualthreaded cores built on Power Architecture® technology with high-performance data path acceleration and network and peripheral bus interfaces required for networking, telecom/ datacom, wireless infrastructure, and military/aerospace applications.

T2080 CPU PCB Top side



T2080 CPU PCB Bottom side



CPU PCB Dimensions

	<u>Inches</u>	<u>Millimeters</u>
Length	5.98	151.9
Width	4.83	122

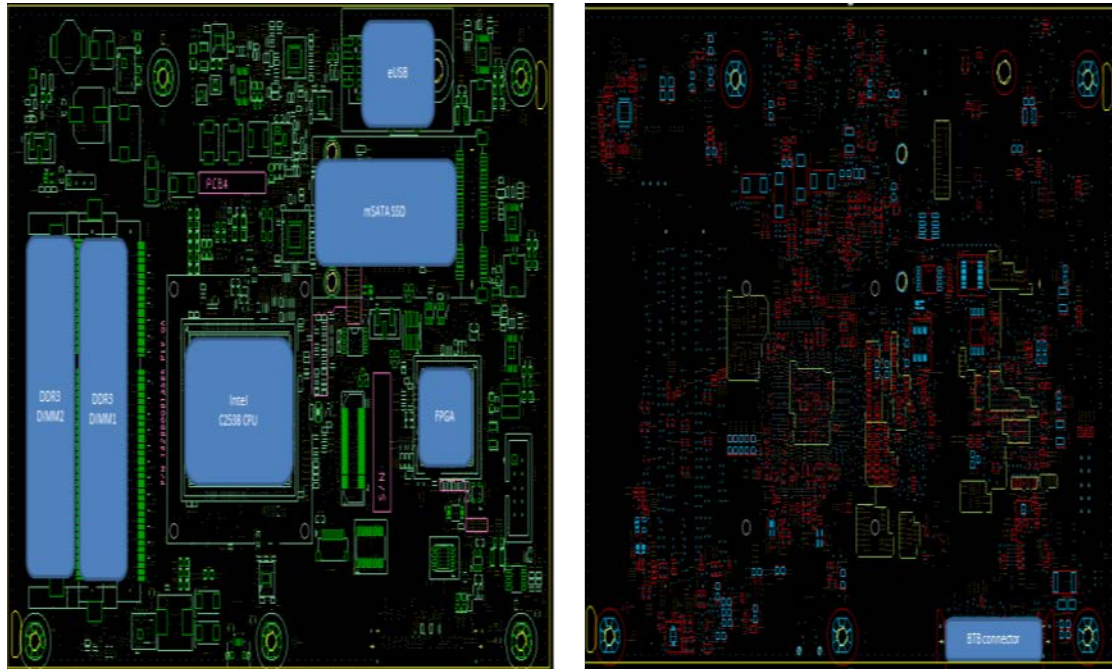
CPU PCB major components

<u>Description</u>	<u>Manufacturer</u>	<u>Part Number</u>
CPU	Freescall	T2080NSN7PNC 1.5GHz 1.0V FCPBGA780 FREESCALE
CPU	FREESCALE	T2080NSN8TTB
SDRAM (8GB per channel)	UNIGEN	UG10U7211P8UU-BDE
USB to NAND Flash 8GB	ATP	AF8GSSGH-AC2
NOR Flash (128MB)	MICRON	JS28F00AM29EWH
Trusted Platform Module (TPM)	ST	ST33ZP24AR28PVSK
mSATA Connector	TE	1775838-2
M.2 connector	CONCRAFT	213BAAA32FA
SD Connector	CVILUX	CSD-09A001D
B2B Connector	SAMTEC	BTH-060-01-F-D-RA-WT-K

X86 Rangeley CPU Module PCB

The x86 CPU module is a 12 layer PCB and supports the communication processor and associated components for the CPU subsystem. The communication processor utilized is an Intel Atom C2000 series communication processor. This family of Intel SoCs offers a wide range of pin compatible options scaling from two to eight cores, a thermal design power (TDP) of 7W to 20W, integrated HW acceleration, and Intel Xeon Instruction Set Architecture compatibility.

X86 Rangeley CPU PCB Top and Bottom side



X86 Rangeley CPU PCB Dimensions

	<u>Inches</u>	<u>Millimeters</u>
Length	7.33	186
Width	4.86	123.5

X86 Rangeley CPU PCB major components

<u>Description</u>	<u>Manufacturer</u>	<u>Part Number</u>
CPU	Intel	C2538 – 2.4GHz 3.0V
SDRAM 4GB SO-DIMM w/ECC (x2)	Innodisk	M3D0-4GHS2LPC 4GB 1.35V
USB to NAND Flash 8GB	ATP	AF8GSSGH-AC1
SPI NOR Flash 8MB (x2)	Winbound	W25Q64FVSSIG
Trusted Platform Module (TPM)	STMicroelectronics	ST33ZP24AR28PVSP ST
FPGA	Microsemi	A2F200M3F-FGG256
mSATA Connector	TE Connectivity	1775838-2
B2B Connector	SAMTEC	BTH-060-01-F-D-RA-WT-K

120 Pin CPU PCB to Main PCB Connector

ES7632BT 120 Pin	ES7632BT 120 Pin	General	CONNECTOR			General	ES7632BT 120 Pin	ES7632BT 120 Pin
		Function		PIN #	PIN #	Function		
(D)LM75BD_SCLK	IN	TEMP_ANODE	IN/OUT	119	120	I2C_2_SCL	IN	I2C_1_SCL
(O)LM75BD_SDA	IN/OUT	TEMP_CATHODE	IN/OUT	117	118	MGMT_RS232_DCD	IN	CPU_PROCHOT
GND		GND	-	115	116	GPIO		Not Used
CPU_MPHY_SGMII_TX_0_S_P	OUT	MPHY_SGMII_TX_P	OUT	113	114	I2C_2_SDA	IN/OUT	I2C_1_SDA
CPU_MPHY_SGMII_TX_0_S_N	OUT	MPHY_SGMII_TX_N	OUT	111	112	GPIO		Not Used
GND		GND	-	109	110	INTERRUPT		GND
MPHY_CPU_SGMII_RX_0_S_N	IN	MPHY_SGMII_RX_N	IN	107	108	INTERRUPT	OUT	PCIE_OOB_TX_P
MPHY_CPU_SGMII_RX_0_S_P	IN	MPHY_SGMII_RX_P	IN	105	106	MGMT_RS232_DTR	OUT	PCIE_OOB_TX_N
GND		GND	-	103	104	PROCHOT#		GND
CPU_MPHY_MDC	OUT	GPIO(MPHY_MDC)	OUT	101	102	GPIO	IN	PCIE_OOB_RX_P
Not Used		INTERRUPT(MPHY)	IN	99	100	THRMTRIP#	IN	PCIE_OOB_RX_N
CPU_MPHY_MDIO	IN/OUT	GPIO(MPHY_MDIO)	IN/OUT	97	98	INTERRUPT		GND
GND		GND	-	95	96	MGMT_RS232_RXD	IN	UART1_RX
IP_UART0_SOUT	IN	GPIO	IN/OUT	93	94	MGMT_RS232_CTS	IN	UART1_CTS
CPD23_INT_CPU	IN		IN	91	92	INTERRUPT	IN	CPU_TDI
1PPS_CPU	IN	GPIO	IN/OUT	89	90	MGMT_RS232_TXD	OUT	UART1_TX
GND		GND	-	87	88	INTERRUPT	IN	MAC_INT_L
GND		GND	-	85	86	GND		GND
CPU_XFI_EC_TX_0P	OUT	DIFF_PAIR_TX_0_P	OUT	83	84	MGMT_USB_N	IN/OUT	USB2_N
CPU_XFI_EC_TX_0N	OUT	DIFF_PAIR_TX_0_N	OUT	81	82	MGMT_USB_P	IN/OUT	USB2_P
GND		GND	-	79	80	GND		GND
GND		GND	-	77	78	HWIO	OUT	UCD9900_ALERT_1
CPU_XFI_EC_RX_0P	IN	DIFF_PAIR_RX_0_P	IN	75	76	MGMT_RS232_RTS	OUT	UART1_RTS
CPU_XFI_EC_RX_0N	IN	DIFF_PAIR_RX_0_N	IN	73	74	HWIO	OUT	RESET_SYS_CPLD
GND		GND	-	71	72	GPIO	OUT	CPU_TMS
GND		GND	-	69	70	JTAG_TRST#	OUT	CPU_JTAG_RST
CPU_XFI_EC_RX_2P	IN	DIFF_PAIR_RX_1_P	IN	67	68	HWIO	IN	P1014_RST
CPU_XFI_EC_RX_2N	IN	DIFF_PAIR_RX_1_N	IN	65	66	GPIO	OUT	CPU_TDO
GND		GND	-	63	64	GPIO	OUT	CPU_TCK
GND		GND	-	61	62	GPIO	OUT	IP_UART0_SIN
CPU_XFI_EC_TX_2P	OUT	DIFF_PAIR_TX_1_P	OUT	59	60	I2C_0_SDA		Not Used
CPU_XFI_EC_TX_2N	OUT	DIFF_PAIR_TX_1_N	OUT	57	58	I2C_0_SCL		Not Used
GND		GND	-	55	56	INTERRUPT	IN	SYS_CPLD_INT_CPU
GND		GND	-	53	54	HWIO	IN	USB1_PWRFAULT
CPU_PEX_PCIEA_TX_0_P	OUT	PCIE_TX_2_P	OUT	51	52	RESET_MODULE_REQ#	IN	Manu_RST
CPU_PEX_PCIEA_TX_0_N	OUT	PCIE_TX_2_N	OUT	49	50	I2C_1_SCL	OUT	I2C_0_SCL
GND		GND	-	47	48	I2C_1_SDA	IN/OUT	I2C_0_SDA
GND		GND	-	45	46	RESET_SYS_REQ#	OUT	RESET_MAC
CPU_PEX_PCIEA_TX_1_N	OUT	PCIE_TX_3_P	OUT	43	44	SYS_PWR_GOOD	OUT	CPU_THERMALTRIP
CPU_PEX_PCIEA_TX_1_P	OUT	PCIE_TX_3_N	OUT	41	42	HWIO	OUT	USB1_VBUS
GND		GND	-	39	40	GND		GND
GND		GND	-	37	38	GND		GND
PEX_CPU_PCIEA_RX_0_N	IN	PCIE_RX_2_P	IN	35	36	PCIE_TX_0_P	OUT	CPU_PEX_PCIEB_TX_0_P
PEX_CPU_PCIEA_RX_0_P	IN	PCIE_RX_2_N	IN	33	34	PCIE_TX_0_N	OUT	CPU_PEX_PCIEB_TX_0_N
GND		GND	-	31	32	GND		GND
GND		GND	-	29	30	GND		GND
PEX_CPU_PCIEA_RX_1_N	IN	PCIE_RX_3_P	IN	27	28	PCIE_RX_0_P	IN	PEX_CPU_PCIEB_RX_0_P
PEX_CPU_PCIEA_RX_1_P	IN	PCIE_RX_3_N	IN	25	26	PCIE_RX_0_N	IN	PEX_CPU_PCIEB_RX_0_N
GND		GND	-	23	24	GND		GND
GND		GND	-	21	22	GND		GND
CPU_PEX_PCIEB_TX_1_N	OUT	PCIE_TX_1_P	OUT	19	20	PCIE_RX_1_P	IN	PEX_CPU_PCIEB_RX_1_P
CPU_PEX_PCIEB_TX_1_P	OUT	PCIE_TX_1_N	OUT	17	18	PCIE_RX_1_N	IN	PEX_CPU_PCIEB_RX_1_N
GND		GND	-	15	16	GND		GND
GND		GND	-	13	14	GND		GND
GND		GND	-	11	12	GND		GND
VCC12		12VDC	-	9	10	12VDC		VCC12
VCC12		12VDC	-	7	8	12VDC		VCC12
VCCSP0		5VDC	-	5	6	12VDC		VCC12
VCCSP0		5VDC	-	3	4	12VDC		VCC12
VCCSP0		5VDC	-	1	2	12VDC		VCC12

Software Support

The AS7300-54X supports a base software package composed of the following components:

BIOS support

The AS7300-54X Supports AMI AptioV BIOS version A01 or greater with the x86 CPU module

U-Boot

The AS7300-54X Supports U-Boot version 1.4.0.2 or greater with the P2041 CPU module

ONIE

The AS7300-54X supports ONIE version 2014.08 or greater with the P2041 CPU Module

Open Network Linux

See <http://opennetlinux.org/> for latest supported version

Specifications

Power Consumption

The total estimated system power consumption of the AS5410-54X is ~480 Watts. This is based upon worst case power assumptions for traffic, optics used, and environmental conditions. Typical power consumption will be less.

Environmental

- 0 to 45 Degrees C operating range
- -40 to 40 Degrees C storage temperate range
- Humidity 5% to 95% non-condensing (operational and storage)
- Vibration – IEC 68-2-36, IEC 68-2-6
- Shock – IEC 68-2-29
- Acoustic Noise Level – Under 60dB in 40 degree C
- Altitude - 15,000 (4572 meters) tested operational altitude

Safety

- UL/ Canada
- CB (Issued by TUV/RH)
- China CCC

Electromagnetic Compatibility

- CE
- EN55022 Class A
- EN55024
- EN61000-3-2
- EN61000-3-3
- FCC Title 47, Part 15, Subpart B Class A
- VCCI Class A
- CCC

ROHS

Restriction of Hazardous Substances (6/6)

Compliance with Environmental procedure 020499-00 primarily focused on Restriction of Hazardous Substances (ROHS Directive 2002/95/EC) and Waste and Electrical and Electronic Equipment (WEEE