OPEN
Compute Project

MiTAC OCP Purley Server

E7278P

V0.1

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Scope

This document defines the technical specifications for the E7278P used in Open Compute Project Open Rack V2.
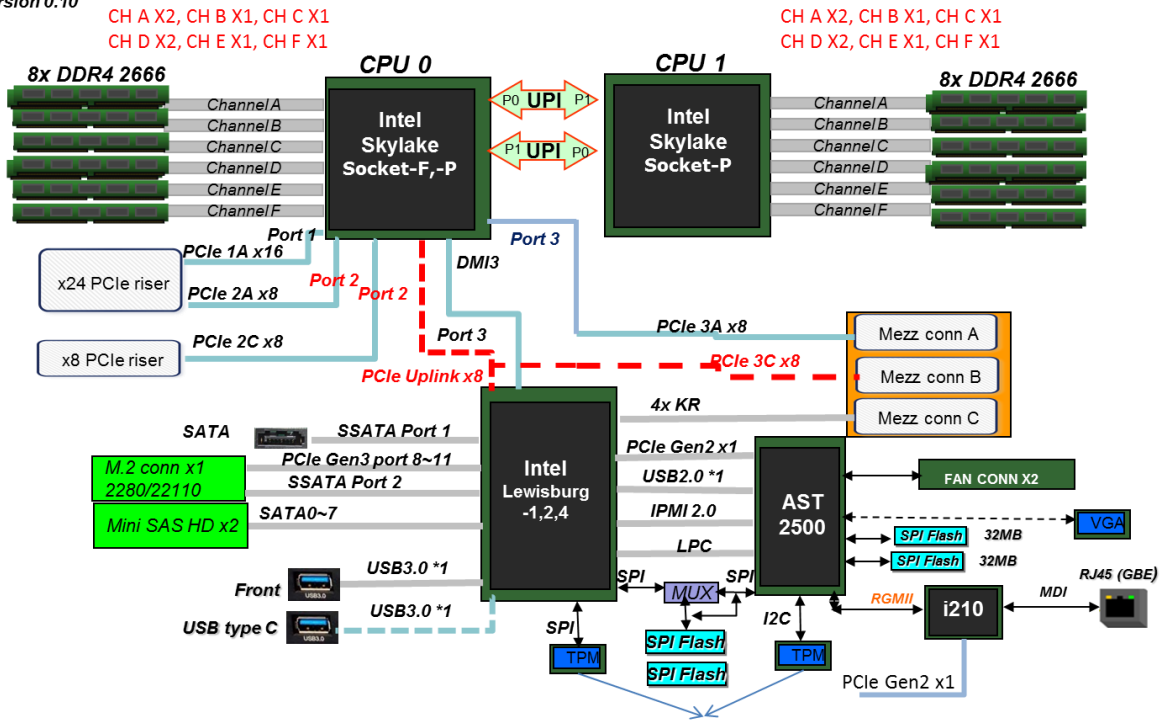
Overview

MiTAC E7278P is a Mother Board that follows "Facebook 2S Socket Tioga Pass Rev1.0" specification with these variances:

1. Support 8 DIMM slots per processor on top side.
2. Choose TI VRD as on board VR devices for highest efficiency.
3. Single sided Mother Board design only.

2. Physical Specifications

2.1 Block Diagram

Version 0.10

CH A X2, CH B X1, CH C X1
CH D X2, CH E X1, CH F X1

CH A X2, CH B X1, CH C X1
CH D X2, CH E X1, CH F X1

8x DDR4 2666

CPU 0

CPU 1

8x DDR4 2666

| Channel A |
| Channel B |
| Channel C |
| Channel D |
| Channel E |
| Channel F |

Intel Skylake Socket-F,-P

P0 **UPI** P1

P1 **UPI** P0

Intel Skylake Socket-P

| Channel A |
| Channel B |
| Channel C |
| Channel D |
| Channel E |
| Channel F |

Port 1

Port 3

PCIe 1A x16

DMI3

x24 PCIe riser

PCIe 2A x8   Port 2 Port 2

Port 3

PCIe 3A x8

Mezz conn A

x8 PCIe riser

PCIe 2C x8

Port 3

PCIe 3C x8

Mezz conn B

PCIe Uplink x8

Mezz conn C

SATA   SSATA Port 1

4x KR

M.2 conn x1 2280/22110   PCIe Gen3 port 8~11

PCIe Gen2 x1

FAN CONN X2

SSATA Port 2

Intel Lewisburg -1,2,4

USB2.0 *1

Mini SAS HD x2   SATA0~7

IPMI 2.0

AST 2500

SPI Flash 32MB

VGA

LPC

SPI Flash 32MB

USB3.0 *1

SPI   SPI

RJ45 (GBE)

Front

RGMII

MDI

USB type C   USB3.0 *1

SPI

MUX

I2C

i210

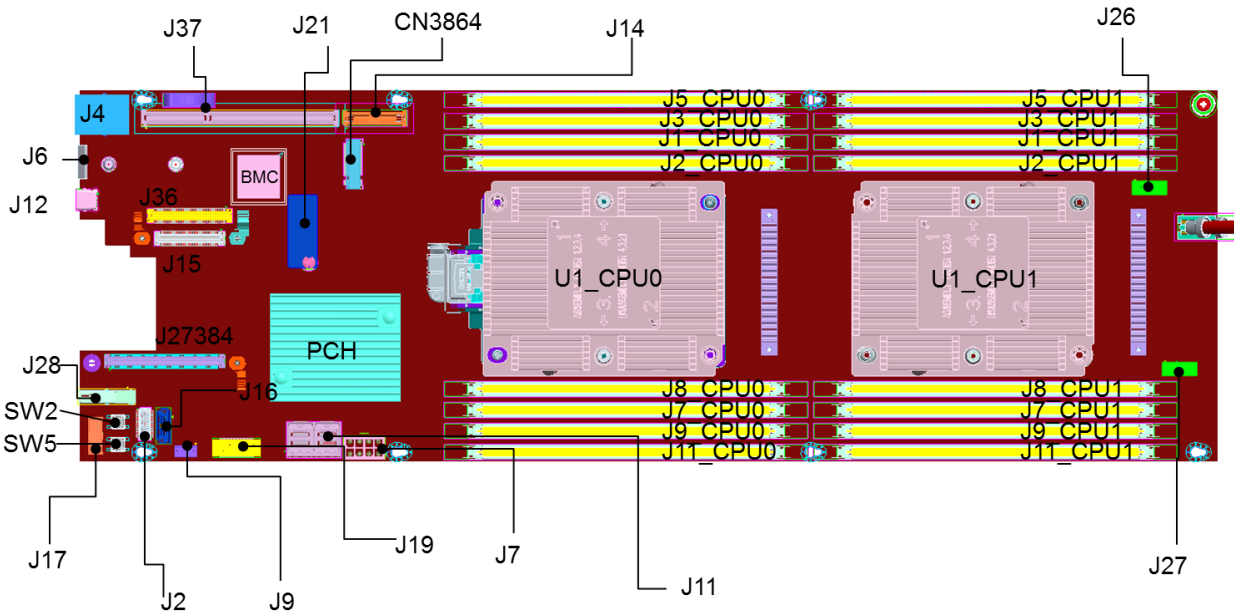TPM

SPI Flash

TPM

SPI Flash

PCIe Gen2 x1

Notes:PCIe Uplink x8 share with Mezz conn B

TPM combined to a header

2.2 Placement and Form Factor

Board outline dimension is fully compliant to Tioga Pass board.

2.3 PCB Stack-Up

Following PCB stack up should be followed for motherboard design with PCB fab vendors .In order to fine tune the impedance based on the impedance control table below before starting PCB design.

No. of Layer	Material IT170GRA1 Type	Cu weight	Stack up THK (mil)	Er
	SM		0.7	
L1	TOP	0.5	1.6	
pp			2.56	
L2	GND	1	1.2	
Core			3	
L3	IN1	1	1.2	
pp			15.8	
L4	IN2	1	1.2	
Core			3	
L5	GND	1	1.2	
pp			2.56	
L6	IN3	1	1.2	
Core			15	
L7	PWR/GND	1	1.2	
pp			2.56	
L8	GND	1	1.2	
Core			3	
L9	IN3	1	1.2	
pp			15.8	
L10	IN4	1	1.2	
Core			3	
L11	GND	1	1.2	
pp			2.56	
L12	BOT	0.5	1.6	
	SM		0.7	
	2.16mm+/-10%	Total	85.44	
	85.03mils+/-9mil		2.17018034	

2.4 DIMM slot
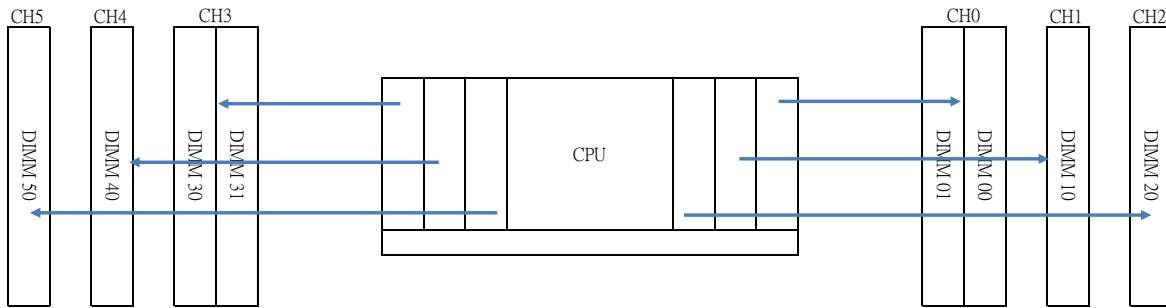
3.   BIOS

The E7278P BIOS is based on uEFI v2.3.1 specification. It supports uEFI and legacy modes for different OS.

Both Skylake and Cascade processors are supported and validated on the same Mother Board.

Redfish V1.0 is supported.

4. BMC

E7278P uses an ASPEED® AST2500 BMC as platform management services and interfaces with hardware, BIOS, Intel® SPS firmware.

BMC firmware is based on AMI® RR11.6 code.