



AG6248C HW Specifications OCP Review

Product Portfolio



Hardware Platform



AG8032
32 Ports 40GbE
Spine & Leaf Switch



AG7648
48 Ports 10GbE/
6 ports 40GbE
Leaf Switch



AG9032 v1
32 Ports 100GbE
Spine Switch



AG6248C PoE
48 Ports 1GbE/
2 ports 10GbE
PoE Switch



AG8064
64 Ports 40GbE
Spine Switch

Available Now!

Solution



Trident 2



Trident 2



Tomahawk



Helix 4



Tomahawk

NOS



ipinfusion



ipinfusion



ipinfusion



ipinfusion



ipinfusion



Product Portfolio



Hardware Platform



AG7648C
48 Ports 10GbE/
6 ports 40GbE
Leaf Switch



AGC7648
48 ports 10GbE/
6 ports 100GbE
Deep Buffered
Switch



AG5648
48 ports 25GbE/
6 ports 100GbE
Leaf Switch



AG7648 v1
48 Ports 10GbE/
6 port 40GbE or
4 ports 100GbE
Leaf Switch



AG7448 v1
48 Ports 10GbE/
4 ports 100GbE
Leaf Switch

2016

Solution



Trident 2



Qumran-MX



Tomahawk



Maverick



Trident +

NOS



ipinfusion



ipinfusion



ipinfusion



ipinfusion



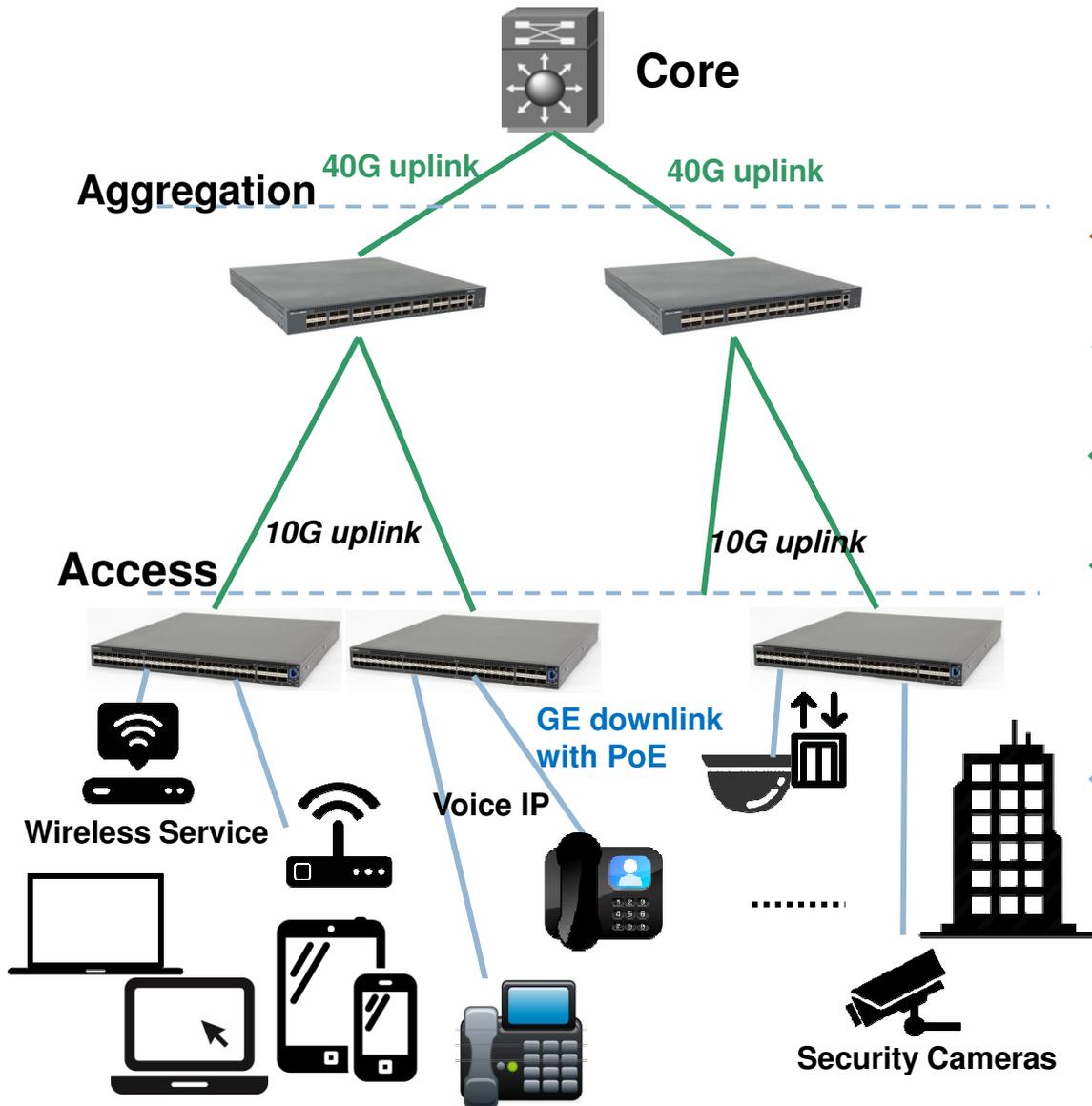
ipinfusion

Agema Product Matrix



| Model | CPU | Switching Chip | Port Configuration |
|---------|----------------------|----------------|--------------------------------------|
| AG6248C | On Chip ARM 9 | Helix4 | 48x 1GbE PoE+ & 2 x 10GbE |
| AG7448 | Freescale P2020 | Trident+ | 48 x 10GbE & 4 x 40GbE |
| AG7648 | Intel Rangeley C2338 | Trident II | 48 x 10GbE & 6 x 40GbE |
| AG7648C | Intel Rangeley C2338 | Trident II | 48 x 10GbE Copper & 6 x 40GbE |
| AG8032 | Intel Rangeley C2338 | Trident II | 32 x 40GbE (QSFP+) |
| AG8064 | Intel Rangeley C2338 | Tomahawk | 64 x 40GbE |
| AG9032 | Intel Rangeley C2538 | Tomahawk | 32 ports 100GbE (QSFP28) |
| AG5648 | Intel Rangeley C2538 | Tomahawk | 48 x 25GbE (SFP28) & 6 x 100GbE |
| AGC7648 | Intel Rangeley | Qumran | 48x 10GbE & 6 x 100GbE (Deep Buffer) |

PoE Network Environment in Campus



Aggregation Switch

- 64x40G AG8064** Tomahawk
- 32x40G AG8032** Trident 2
- 48x10G+6x40G AG7648** Trident 2
- 48x10G+6x40/4x100 AG7648 v1** Maverick

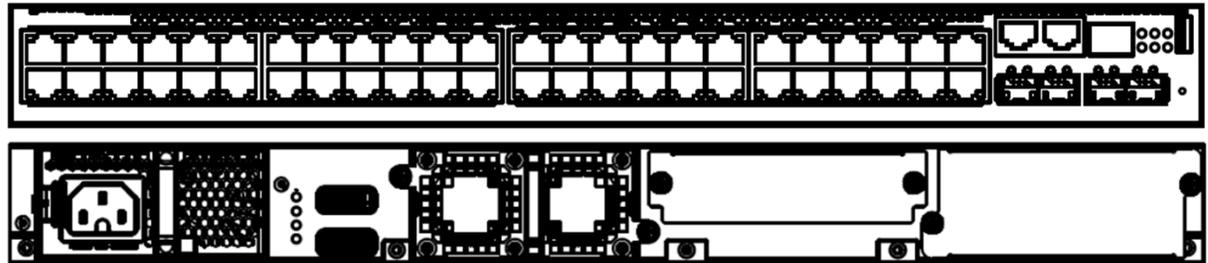
Access Switch

- 48x1GE+2xcombo SFP+2x10G SFP+ AG6248C PoE** Helix 4

AG6248C – 48x1GbE Copper & 2 x10GbE PoE+

1 GbE PoE Switch

AG6248C PoE



Interface

- 1RU fixed form-factor switch
- 48 1GbE RJ45 ports including 2 combo 1GbE SFP ports
2 10G SFP+ ports
- 1 RJ-45 out-of-band management
1 RJ-45 serial console
1 USB port

- 1 AC Power Supply
Max. power 1100W
(900 W Power Budget)
1+1 redundancy support
- 2 hot swappable fan modules

Physical

- Size (wxdxh): 434x460x43.5 mm

Memory and Storage

- NAND Flash 4GB
- System memory 1GB DDR3

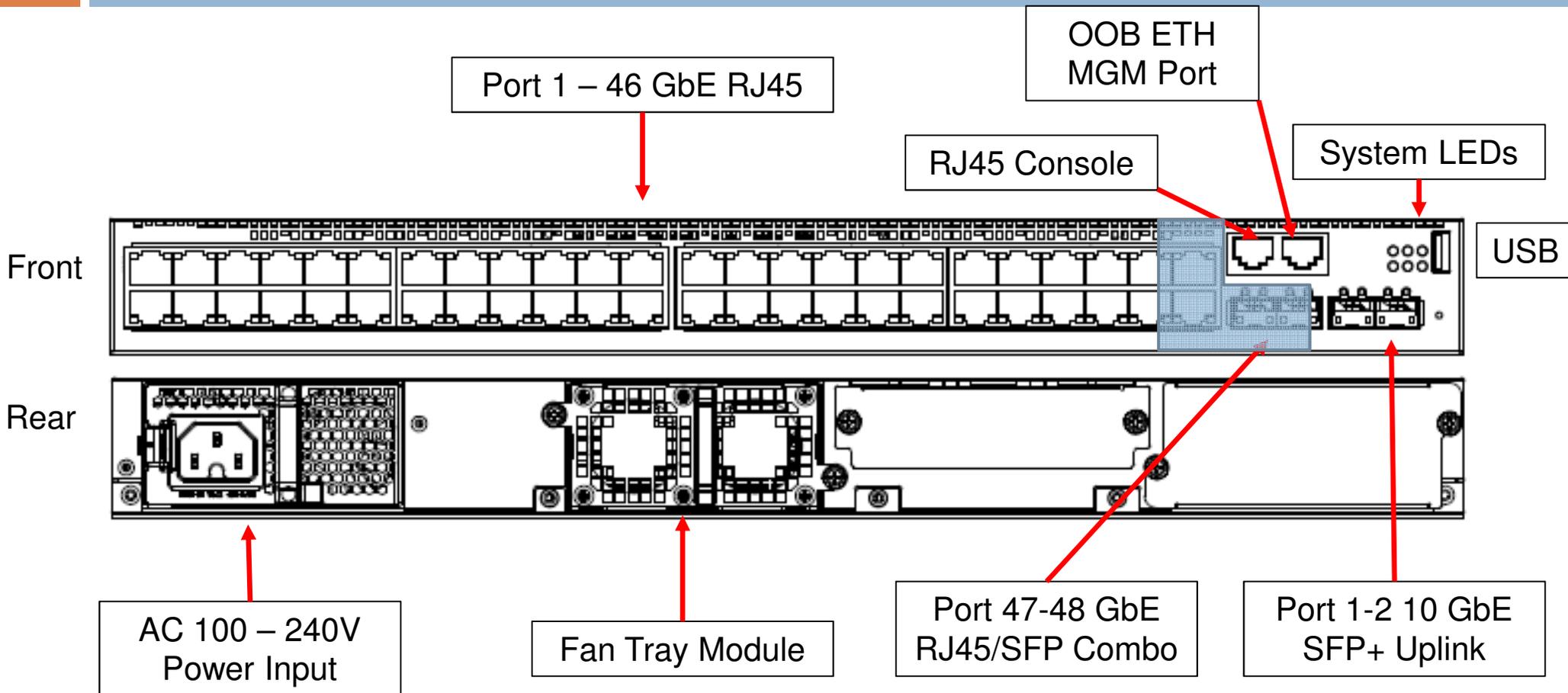
Switching Chip

- Broadcom BCM56340 (Helix 4)
(Integrated Dual Core ARM Cortex A9 IC)
- 68Gbps switching bandwidth
- Forwarding rate up to 101Mpps
- Jumbo Frames up to 12K

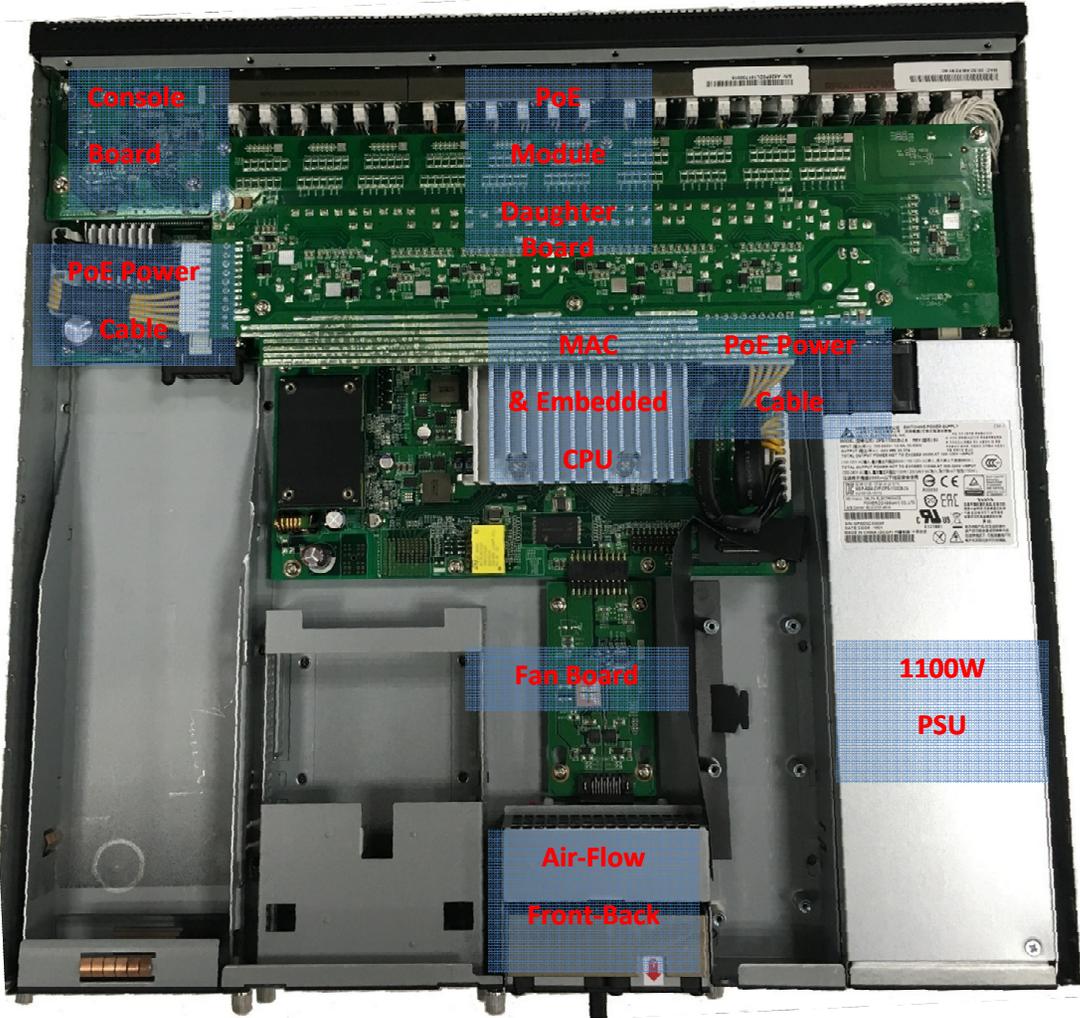
Software Environment Support

- ONIE / Diag
- Agema OS, IPInfusion OcnOS compatible

AG6248C – Front and Back Panels



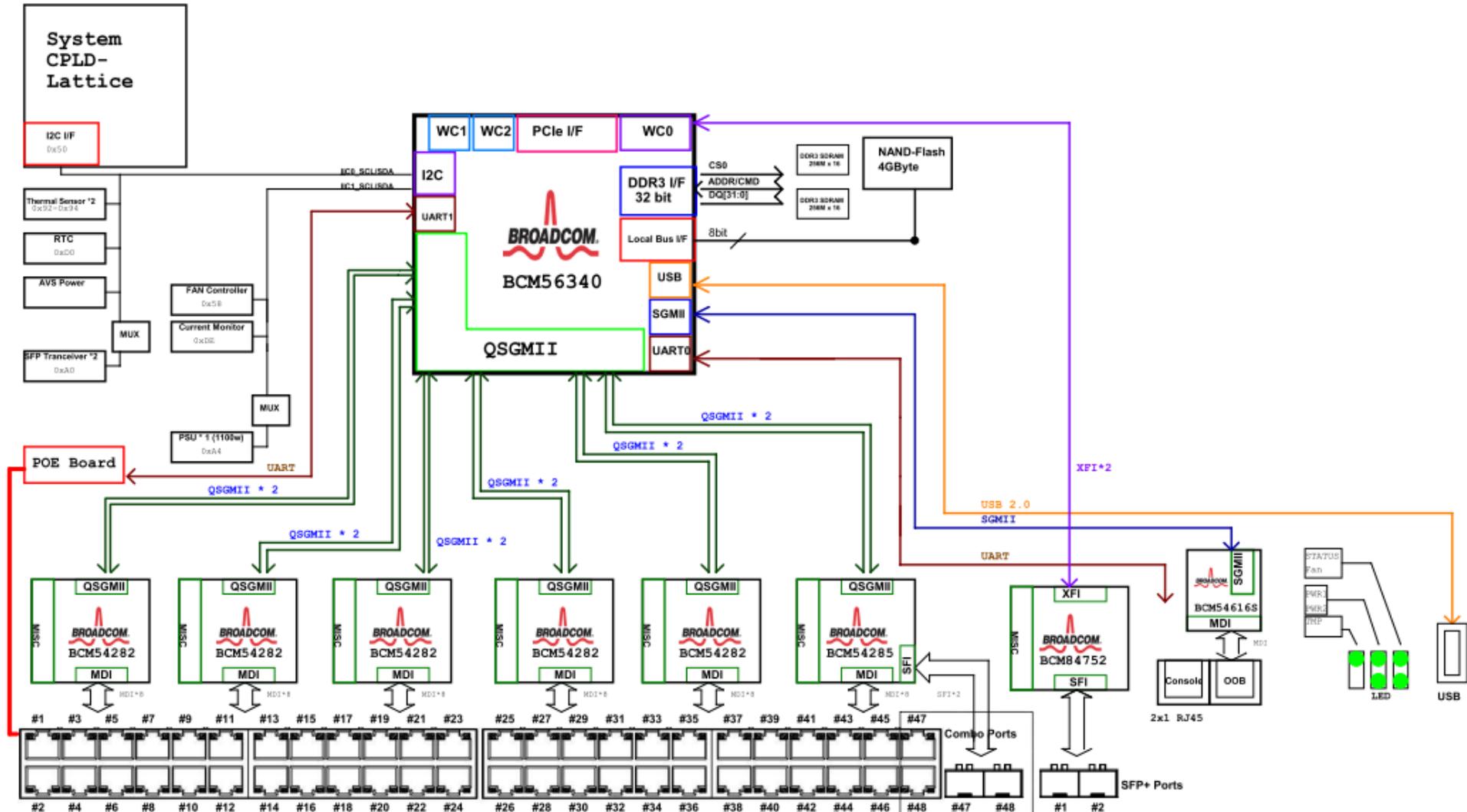
AG6248C – PCB Board and Modules Layout



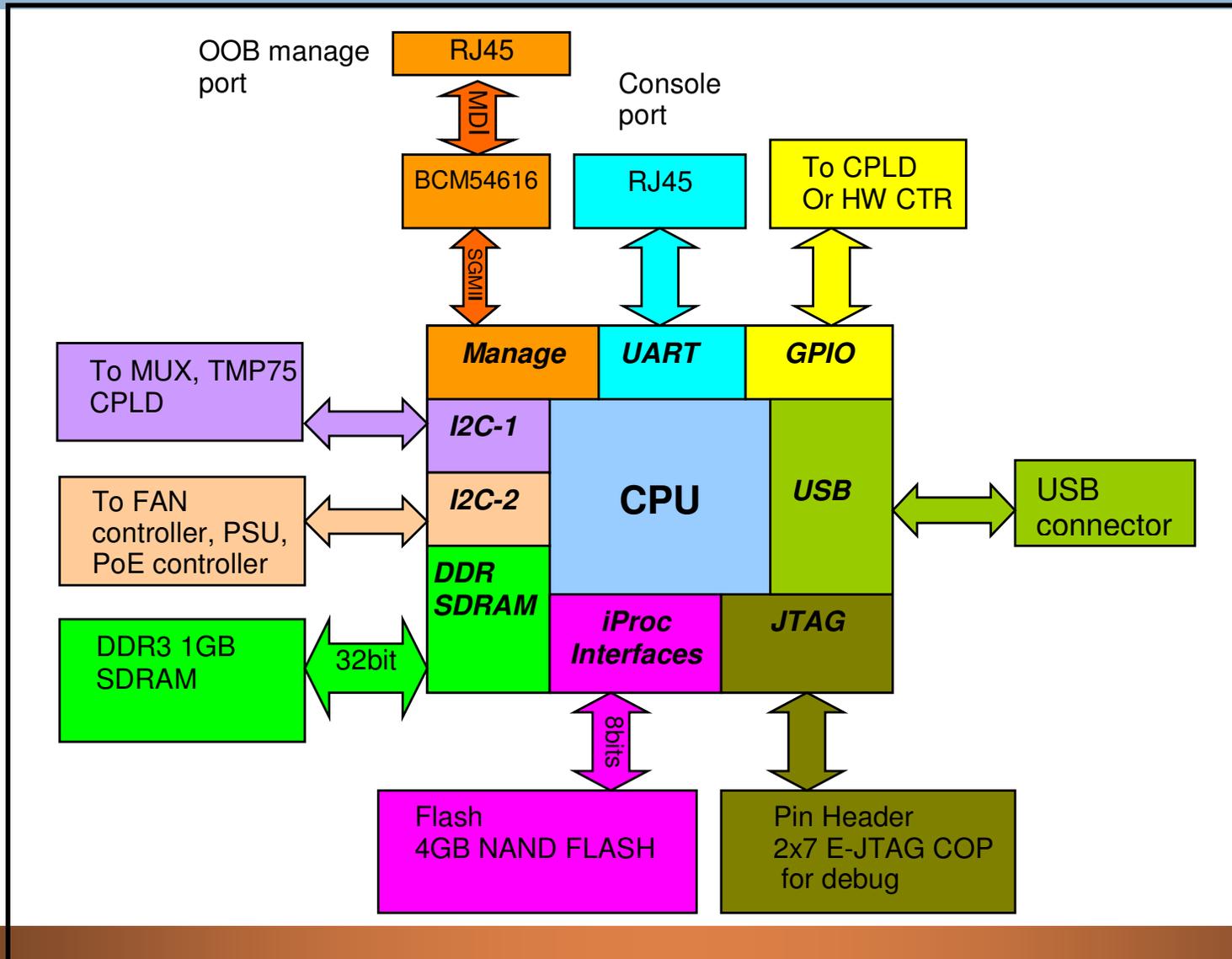
AG6248C – Standard Components Configuration

| Components | Module/Chipset Specs | Quantity |
|-------------------|-----------------------------|-----------------|
| PSU | 1100 W | 1 |
| MAC | BCM56340 | 1 |
| PHY | BCM54282 | 5 |
| | BCM54285 | 1 |
| | BCM84752 | 1 |
| PHY (OOB) | BCM54616s | 1 |
| POE Controller | PD69100 | 1 |
| | PD69108ILQ | 8 |

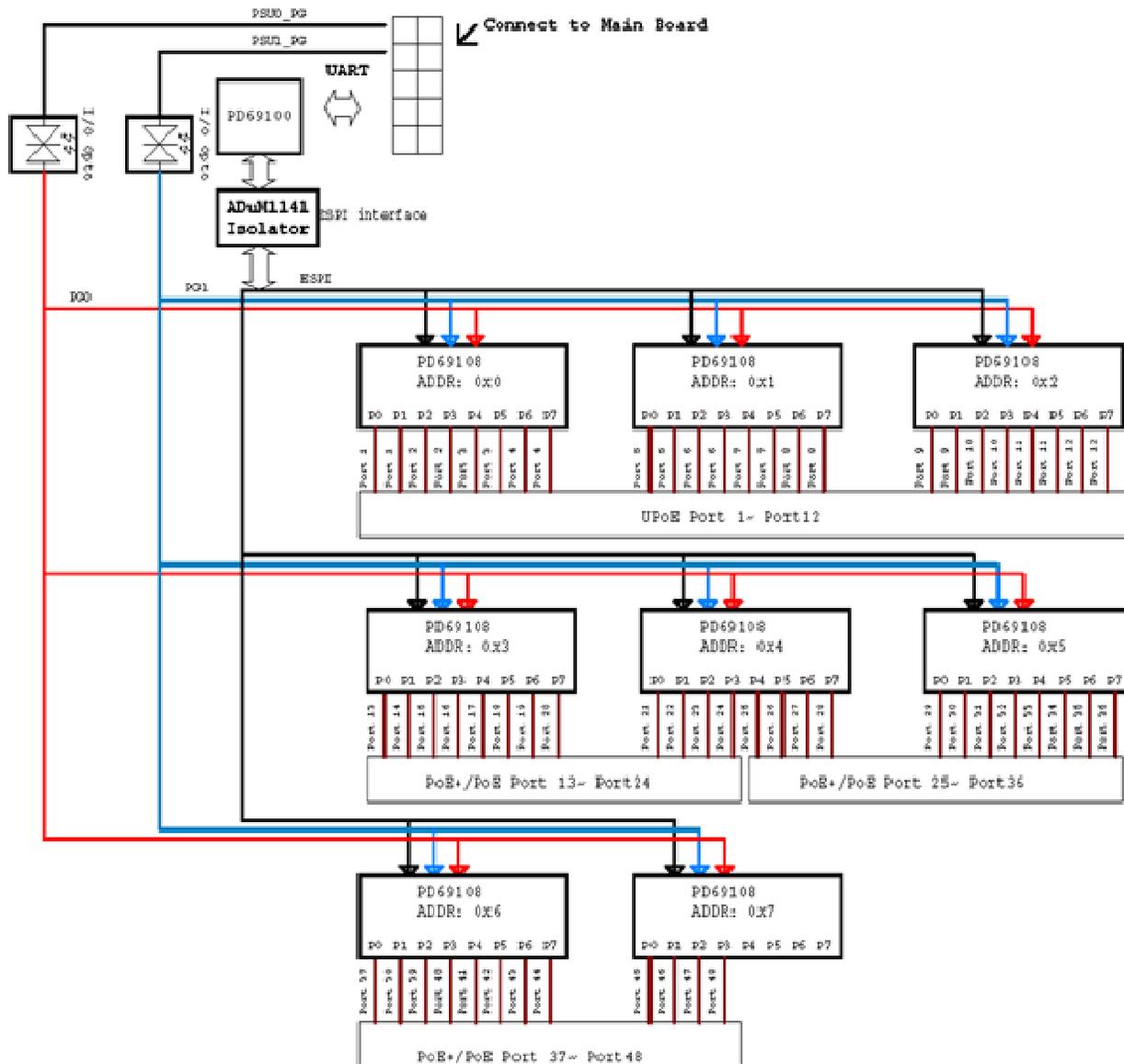
AG6248C – Switch Overall Block Diagram



AG6248C – MAC/CPU Diagram



AG6248C – PCB Daughter Board Layout



AG6248C – Communication Port Status (1)

1G copper port LEDs

| Feature | Detailed Description | Comment |
|---|---|---------|
| Link/SPD LED (Left bi-color LED) | Green – Link at 1000Mbps Yellow – Link at 10/100Mbps Solid – Link OFF – No Link | |
| PoE Switch POE/ACT LED (Right bi-color LED) | Green Blinking – Activity, PoE power OFF Yellow Blinking – Activity, PoE power ON Yellow Solid – No Activity, PoE power ON OFF –No Activity, PoE power OFF | |

SFP Combo port LEDs

| Feature | Detailed Description | Comment |
|--|---|---------|
| Link/SPD LED (Left bi-color LED) | Off – No Link Solid green –Link on 1000Mbps speed Solid Amber –Link on 100Mbps speeds | |
| ACT LED (Right single color LED) | Off – No Activity Blinking green – Activity | |

AG6248C – Communication Port Status (2)

SFP+ port LEDs

| Feature | Detailed Description | Comment |
|--|---|---------|
| Link/SPD LED (Left bi-color LED) | Off – No Link Solid green –Link on 10G speed Solid Amber –Link on 1G speeds | |
| ACT LED (Right single color LED) | Off – No Activity Blinking green –Activity | |

OOB Ethernet port LEDs

| Feature | Detailed Description | Comment |
|--|---|---------|
| Link/SPD LED (Left bi-color LED) | Off – No Link Solid green – Link on 1G speed Solid Amber – Link on 100M or 10M speeds | |
| ACT LED (Right single color LED) | Off – No Link Blinking green – Transmitting / Receiving | |

Console port LEDs

| Feature | Detailed Description | Comment |
|--|--|---------|
| Link/SPD LED (Left bi-color LED) | Off – No Link Solid green – Link is present | |

AG6248C – System, Power, Fan Status LED

System LEDs indication including System, Master, Power, temperature and Fan Status

| Feature | Detailed Description | Comment |
|--|--|---------------|
| STATUS LED (Bi-color LED) | Solid Green –Normal operation Blinking Green – Booting Solid Red –Critical system error Blinking Red –Non-critical system error (fan fail, power supply fail) | At front side |
| POWER 1 LED (Single color LED) | Off – Power failure or no power Solid Green – Power is good Blinking Green – locator function is enable | At front side |
| POWER 2 LED (Single color LED) | Off – Power failure or no power Solid Green – Power is good Blinking Green – locator function is enable | At front side |
| FAN LED (Bi-color LED) | Solid Green –fan powered and @expected rpm Solid Red –fan failed | At front side |
| TEMP LED (Bi-color LED) | Solid Green – System temperature is below threshold limit Solid Red –System temperature has exceeded threshold limit | At rear side |

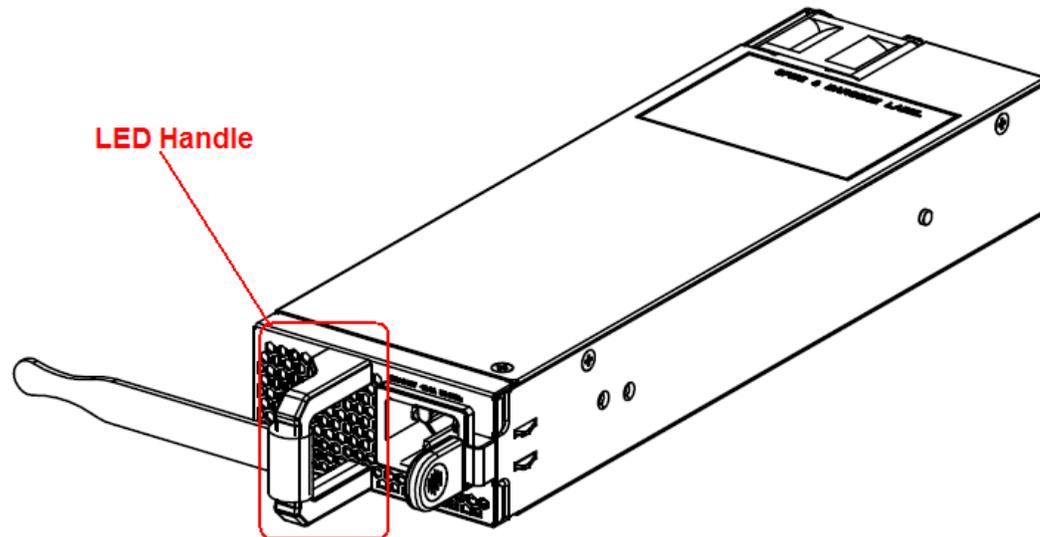
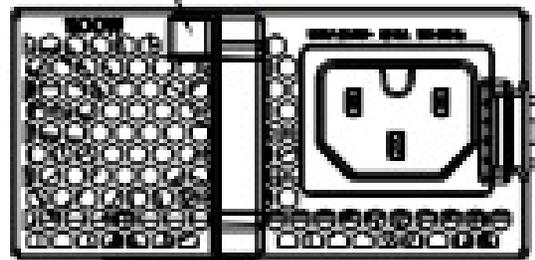
Note: The system temperature threshold is 75 centigrade when one of thermal sensors over temperature. And the TEMP LED will be lighted up to RED.

AG6248C – PSU & PoE Power Budget

| Model Name | System Power Maximum Dissipation | PoE Power budget limited | | | |
|----------------|----------------------------------|----------------------------|---|------------------------------------|---|
| | | One PSU support | | <i>Two PSUs support for Option</i> | |
| | | Maximum PSU output ability | POE+ power turn on limitation | <i>Maximum PSUs output ability</i> | <i>POE+ power turn on limitation</i> |
| AG6248C | 140W | 1100W | Power budget is 900W: The total POE supply power need to within the 900W. | 2200W | Power budget is 1800W All PoE+/UPOE ports can be turned on. |

AG6248C – PSU (Power Supply Unit)

Rear view AC
Power Supply



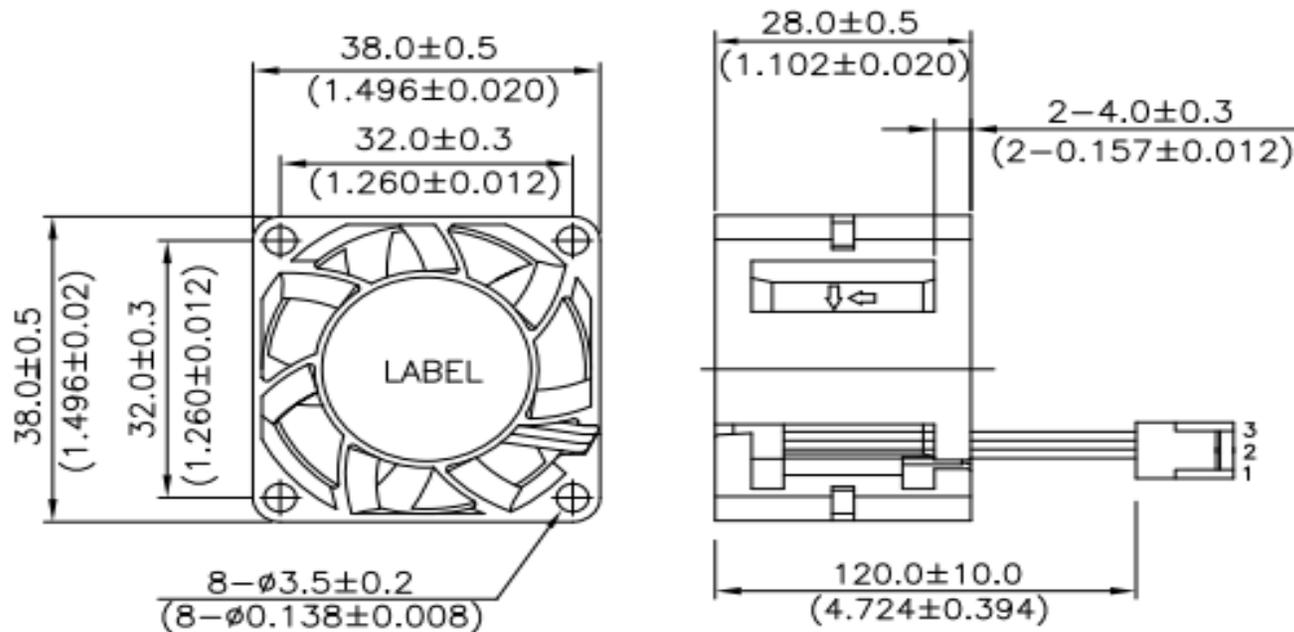
1100W PSU LED behaviors

Off – No Power Supply

Solid Green – Power is good

Solid Red – detected, power bad

AG6248C – Fan Module Specifications



NOTE:

1. LEAD WIRE UL1061 AWG#24
 PIN 1. RED WIRE ---- (+)
 PIN 2. BLUE WIRE ---- (F00)
 PIN 3. BLACK WIRE ---- (-)
2. HOUSING: MOLEX 5051-03 22-01-1032
3. TERMINAL: MOLEX 2759T 08-50-0113
4. THIS PRODUCT IS ROHS COMPLIANT.

UNIT: MM(INCH)

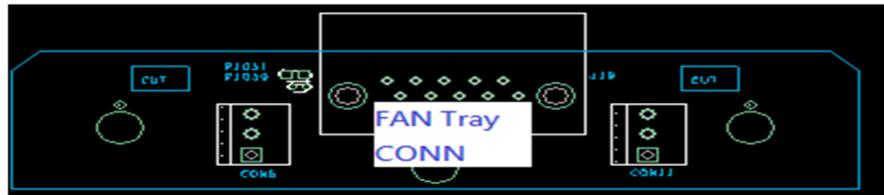
AG6248C – PCB Stack up Layer

8-Layer⁺

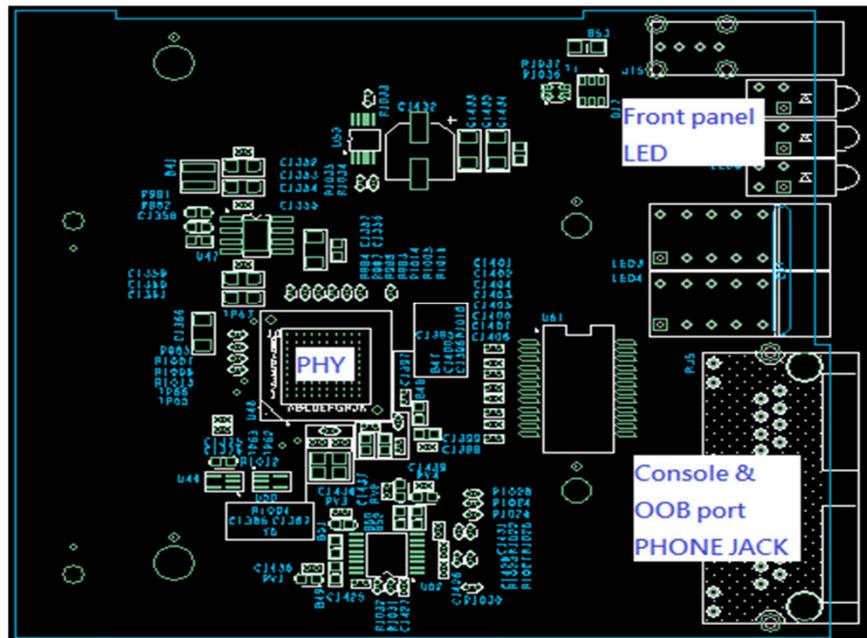
| Structure (Stack up) | | | |
|-----------------------|-------------|----------------------------|--|
| Layer | Type | | |
| | Solder mask | | |
| 1 | TOP | L1 - SIGNAL (0.5oz) | |
| | prepreg | | |
| 2 | G | L2 - GROUND(1oz) | |
| | core | | |
| 3 | S | L3 - SIGNAL(1oz) | |
| | prepreg | | |
| 4 | PWR | L4 - Power (1oz) | |
| | core | | |
| 5 | PWR | L5 - Power (1oz) | |
| | prepreg | | |
| 6 | S | L6 - SIGNAL(1oz) | |
| | core | | |
| 7 | G | L7 - GROUND(1oz) | |
| | prepreg | | |
| 8 | BOT | L8 - SIGNAL(0.5oz) | |
| | solder mask | | |
| board thickness=2.1mm | | | |

AG6248C – Fan, Console PCB Boards Layout

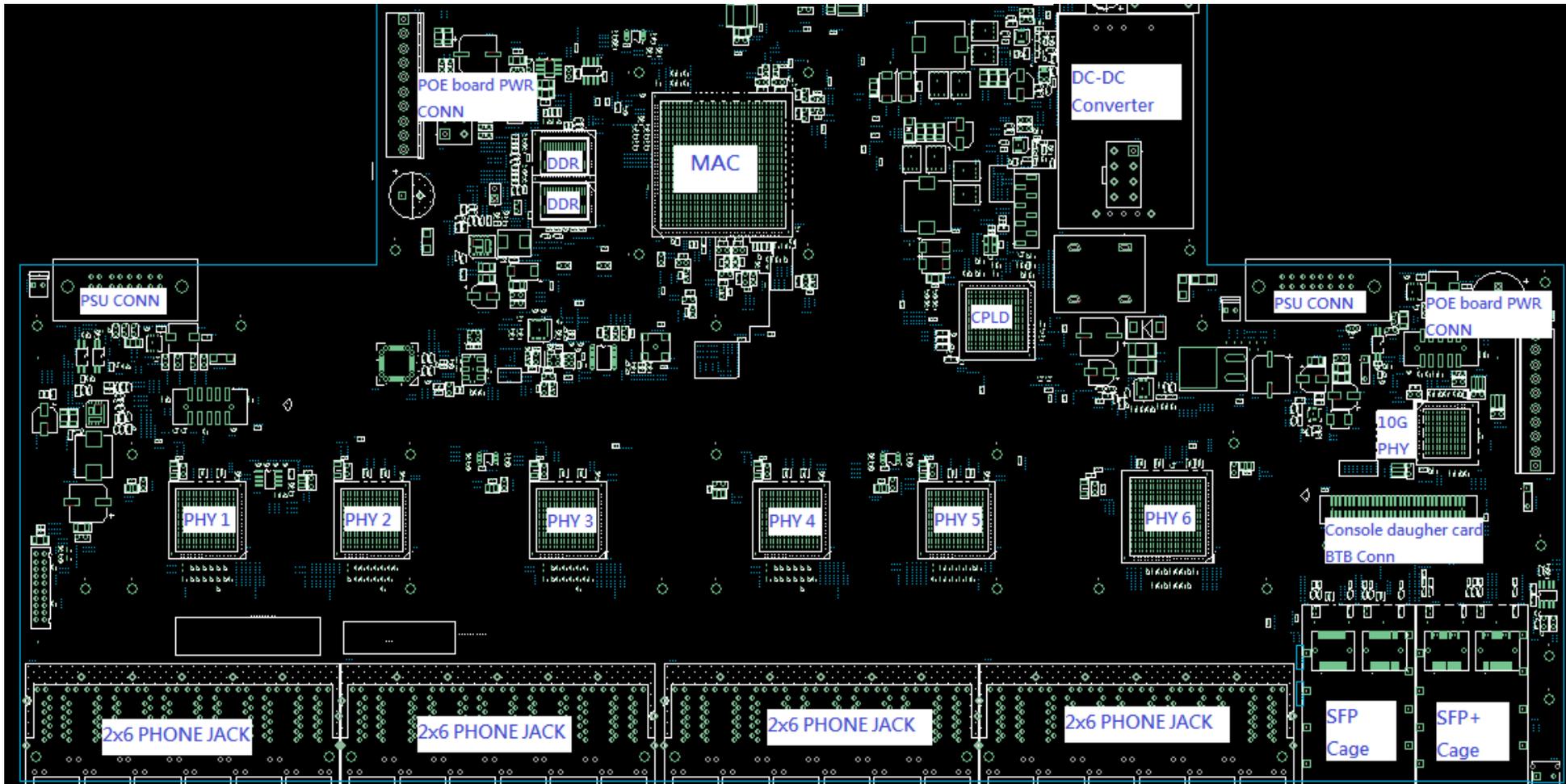
FAN board →



Console board →



AG6248C – Major PCB Board Layout



AG6248C-Software Choices



| | Agema Systems | IP Infusion |
|---|---------------|-------------|
| Software Features | Agema OS | OcNOS™ |
| • Basic Switching Features | v | v |
| • Routing Features | v | v |
| • Data Center Features | v | v |
| • SDN Features | v | v |
| • Service Provider Networking Features (<i>Comprehensive MPLS and Carrier Ethernet</i>) | | v |



AG6248C – Major Components List

| Description | Manufacturer | Part number |
|---------------------------------------|--------------|-----------------------------|
| IC ETH SW 48P+4P 1GB+10GB | Broadcom | BCM56340A0KFSBG |
| IC ETH X'CEIVER 8P GB FBGA-400B | Broadcom | BCM54285C1KFBG |
| IC ETH X'CEIVER 8P GB FBGA-256B | Broadcom | BCM54282C1KFBG |
| IC ETH PHY 2P 10GB BGA-144B | Broadcom | BCM84752A1IFSBG |
| IC ETH X'CEIVER 10/100/GB-T FBGA-100B | Broadcom | BCM54616SC0KFBG |
| PHONE JACK LF LED 10P8C 6*2 | Delta | RPGC-12AF0360DR |
| PHONE JACK LF LED 10P8C 6*2 | Delta | RPGC-12AF8050DR |
| Dual core ARM Cortex-A9 | Broadcom | BCM56340 Integrated CPU |
| DDR3 SDRAM | Samsung | K4B4G1646D0BCK0 |
| NAND Flash | Micron | MT29F32G08ABAAWP-Z:A |
| Power Supply Unit (PSU) | Delta | DSP-1100CB-2 A |
| PoE | Microsemi | PD69100-026301 + PD69108ILQ |
| Fans | Delta | FFB03812HN-DT26 |
| USB | Wieson | G3502-121141 |

Q&A ?

Thank you

Agema Systems, Inc.

46101 Fremont Blvd| Fremont, CA 94538

Tech Support Hot Line: 1-877-254-3997

<http://www.agemasystems.com>