



OCP SUMMIT

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OpenBMC Hardware Platform Development Guideline

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Agenda

- ✓ Project Background
- ✓ Example of OpenBMC Hardware
- ✓ Challenges and Solutions
- ✓ Forward Looking
- ✓ Q&A



Project Background

OpenBMC Development Kit, including Portwell's COM-e module, CPU/heatsink and BMC integrated carrier board

- ✓ Project Started with FB and ASPEED in 2015 Dec.
- ✓ 1st Revision Released in 2016 July
- ✓ 2nd Revision Released in 2017 Aug.

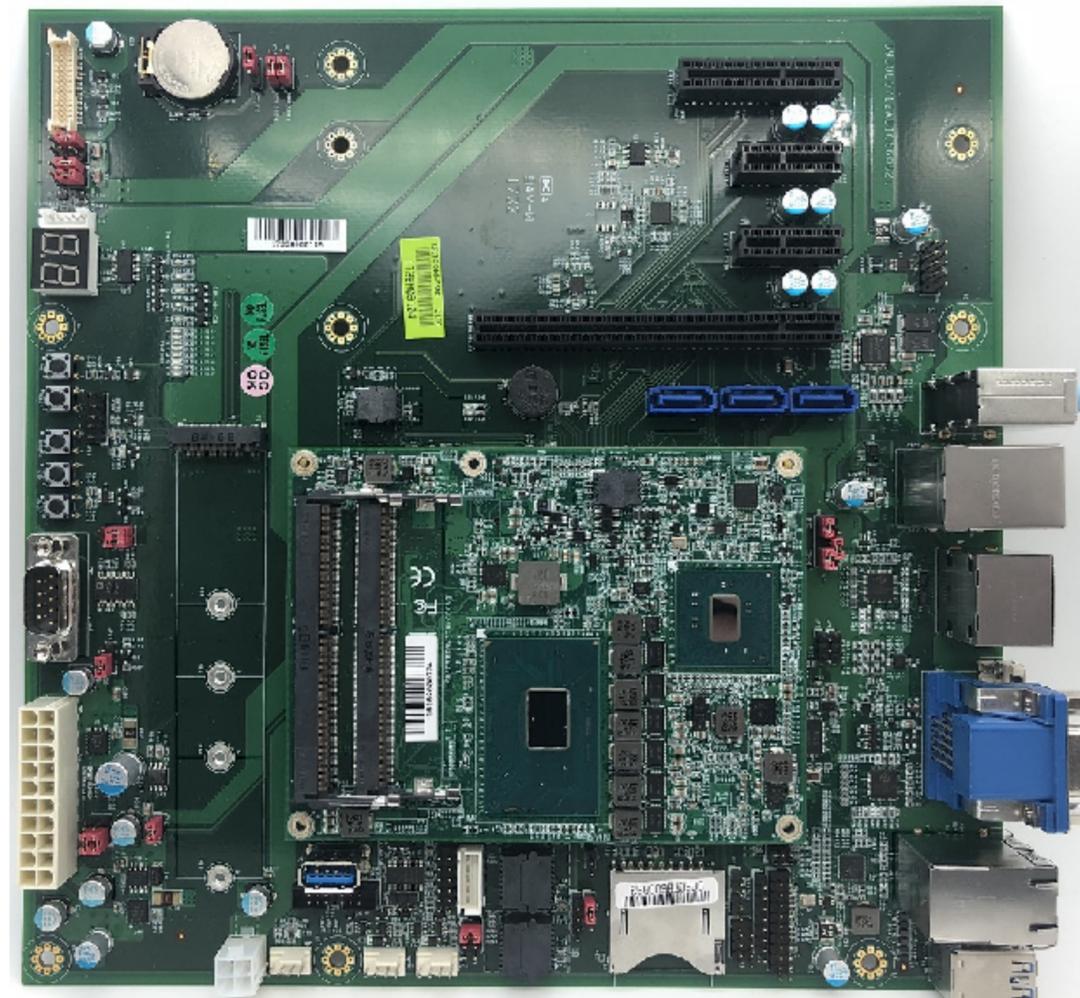


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Example of OpenBMC Hardware

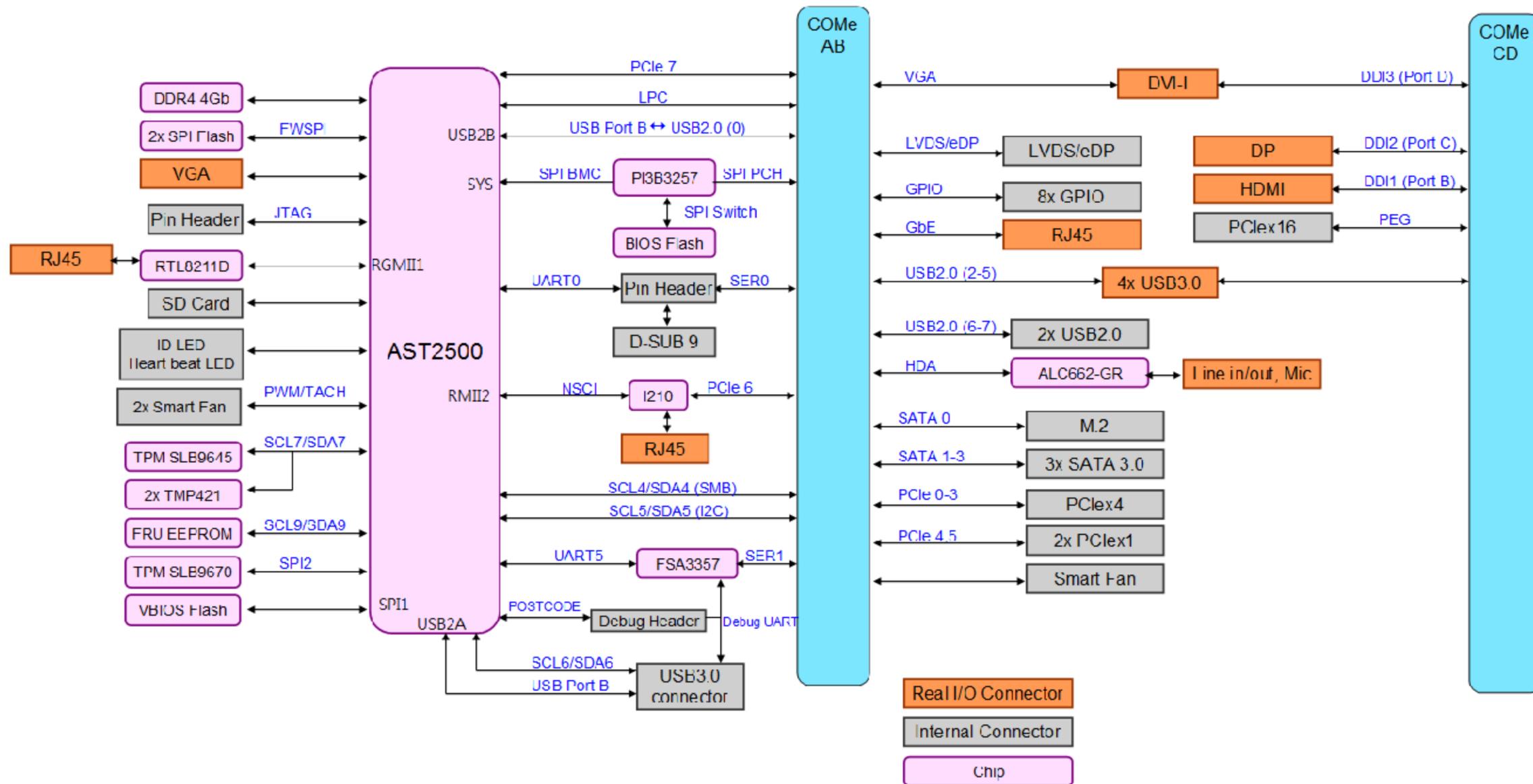
- ✓ Modular Architecture
- ✓ Based on AST2500
- ✓ Fail-safe BMC design
- ✓ Fully Tested by FB
 - Shorten development time



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Hardware Block Diagram





Benefits of Modular Architecture

- ✓ Have a variety of computing engine as option
- ✓ Upgrade easily to the latest computing technologies
- ✓ Easily configure system based on modular architecture and test BMC prior the final system design is completed
- ✓ Quick time to market



Development Challenges

1. Signal stability
2. Optimize interfacing with other devices
3. Interactivity between OpenBMC and firmware (BIOS or/and Embedded Controller)



Development Solutions

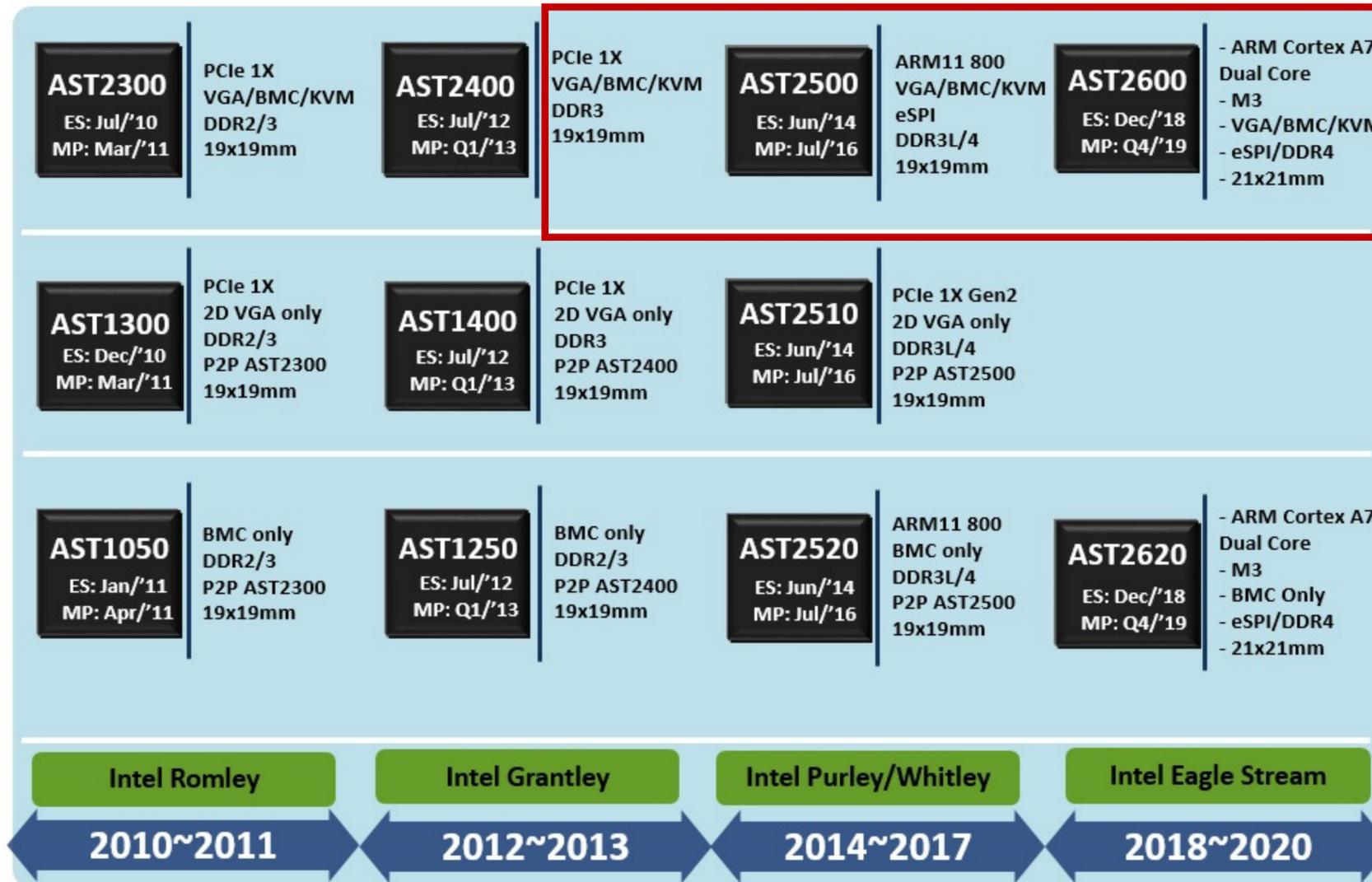
1. Selected steady signal buses in design such as legacy I2C, SMBus or GPIO
2. Use D-bus to communicate with devices
3. Applied OpenBMC built-in devices
4. Tune-up by modifying firmware features/function



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Forward Looking



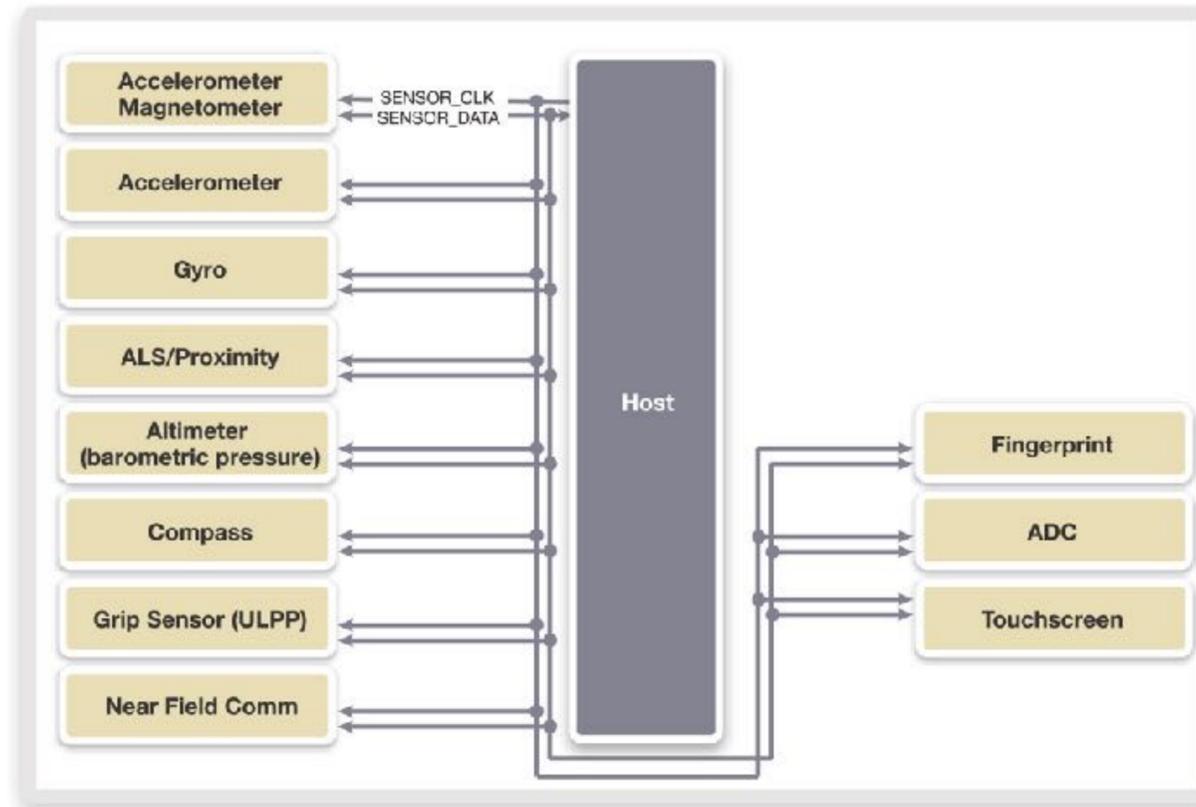
Source: ASPEED Technology



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Forward Looking



Source: MIPI Alliance

	AST2500	AST2600
CPU Type	ARM 11	Cortex A7 Dual-Core
CPU frequency	800MHz	1GHz
L2 Cache	No	256KB
Overall CPU performance	100%	~400%
Co-processor	32bits ColdFire V1 CPU	Cortex M3
PCIe Bus Interface	One PCIe 1x, gen 2	Two PCIe 1x, gen 2
PCIe Host/Client	Host or Client	Host+Client or 2 Hosts
SDRAM Type	DDR4/DDR3 LV	DDR4 only
Max. SDRAM Capacity	1GB	2GB
Secure Boot	Yes, without OTP key	Yes, with OTP key
JTAG Master	x1	x2
I3C Bus	No	Yes
Display Port	No	Yes
Open BMC Ready	Yes	Yes when AST2600 A0 available

Source: ASPEED Technology



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Forward Looking

1. AST2600 is able to run current OPENBMC firmware without any modification. You current developed firmware will be compatible.
2. APT may offer “OpenBMC Ready” system or appliance that can adopt with variety of Intel processors and optional network interfaces.





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