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.
Example of OpenBMC Hardware

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>AST2500</th>
<th>AST2600</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Type</td>
<td>ARM 11</td>
<td>Cortex A7 Dual-Core</td>
</tr>
<tr>
<td>CPU frequency</td>
<td>800MHz</td>
<td>1GHz</td>
</tr>
<tr>
<td>L2 Cache</td>
<td>No</td>
<td>256KB</td>
</tr>
<tr>
<td>Overall CPU performance</td>
<td>100%</td>
<td>~400%</td>
</tr>
<tr>
<td>Co-processor</td>
<td>32bits ColdFire V1 CPU</td>
<td>Cortex M3</td>
</tr>
<tr>
<td>PCIe Bus Interface</td>
<td>One PCIe 1x, gen 2</td>
<td>Two PCIe 1x, gen 2</td>
</tr>
<tr>
<td>PCIe Host/Client</td>
<td>Host or Client</td>
<td>Host+Client or 2 Hosts</td>
</tr>
<tr>
<td>SDRAM Type</td>
<td>DDR4/DDR3 LV</td>
<td>DDR4 only</td>
</tr>
<tr>
<td>Max. SDRAM Capacity</td>
<td>1GB</td>
<td>2GB</td>
</tr>
<tr>
<td>Secure Boot</td>
<td>Yes, without OTP key</td>
<td>Yes, with OTP key</td>
</tr>
<tr>
<td>JTAG Master</td>
<td>x1</td>
<td>x2</td>
</tr>
<tr>
<td>3C Bus</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Display Port</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Open BMC Ready</td>
<td>Yes</td>
<td>Yes when AST2600 A0 available</td>
</tr>
</tbody>
</table>

Source: ASPEED Technology

Source: MIPI Alliance
1. AST2600 is able to run current OPENBMC firmware without any modification. Your 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.
Contact Info

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