Server hardware trends

IT Lightning Talks: session #3 – Eric Bonfillou
Introduction

- Processors and memory
- Storage and networking
- Open Compute project
Processors and memory (1)

- Always more cores per CPU package…
- … and more L3 cache!

<table>
<thead>
<tr>
<th>Physical cores (virtual cores)</th>
<th>Maximum nominal frequency in MHz</th>
<th>Maximum L3 cache in MB</th>
<th>Max TDP in W</th>
<th>Price in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 (8)</td>
<td>3500</td>
<td>15</td>
<td>135</td>
<td>996</td>
</tr>
<tr>
<td>6 (12)</td>
<td>3400</td>
<td>20</td>
<td>135</td>
<td>1552</td>
</tr>
<tr>
<td>8 (16)</td>
<td>3200</td>
<td>20</td>
<td>135</td>
<td>2057</td>
</tr>
<tr>
<td>10 (20)</td>
<td>2600</td>
<td>25</td>
<td>105</td>
<td>1445</td>
</tr>
<tr>
<td>12 (24)</td>
<td>2600</td>
<td>30</td>
<td>135</td>
<td>2094</td>
</tr>
<tr>
<td>14 (28)</td>
<td>2600</td>
<td>35</td>
<td>145</td>
<td>2706</td>
</tr>
<tr>
<td>16 (32)</td>
<td>2300</td>
<td>40</td>
<td>135</td>
<td>TBA</td>
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<tr>
<td>18 (36)</td>
<td>2300</td>
<td>45</td>
<td>145</td>
<td>TBA</td>
</tr>
</tbody>
</table>
Processors and memory (2)

- Moving from DDR3 to DDR4 (for Intel only)
  - Lower power consumption
- Higher capacity per memory module
  - > 32GB already available
  - Still more expansive than DDR3
- Same “restrictions” still apply
  - The more memory, the lower the frequency
Storage and networking (1)

- Lots of upcoming changes on the storage!
  - [HDD] 4k native sector size
  - [HDD] Transition from PMR to SMR
  - [S/HDD] 12G SAS but no evolution foreseen on SATA
  - [SSD] NVMe = Greater PCIe SSD Adoption
Storage and networking (2)

- 10 Gigabit Ethernet on-board is here 😊
  - 10GBase-T mostly, SFP+ still as add-on cards
Open Compute project

- To share designs of data center products
- First evaluations are positive
- Market survey on-going
- Hopefully, some OCP hardware on-site Q2 2015