AMD EMBEDDED R-SERIES PLATFORM

AMD R-Series APUs vs. Intel Core i7, i5, and i3 Processors for Graphics Centric Embedded Applications

Satisfy the performance demands of your embedded applications with the AMD Embedded R-Series platform. The AMD R-Series APU, with new high performance x86 CPU cores and an advanced discrete class GPU in a single chip, excels at CPU graphics, parallel processing, and 3D intensive workloads. Let the outstanding performance and energy efficiency of an AMD R-Series APU provide the foundation for your next embedded design!

**Outstanding Graphics Performance**

<table>
<thead>
<tr>
<th></th>
<th>AMD R-464L, 35W</th>
<th>AMD R-272F, 35W</th>
<th>Intel Core i7-2710QE, 45W</th>
<th>Intel Core i5-2520M, 35W</th>
<th>Intel Core i3-2310M, 35W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentages</td>
<td>235%</td>
<td>157%</td>
<td>100%</td>
<td>98%</td>
<td>86%</td>
</tr>
</tbody>
</table>

Percentages in this chart were derived by normalizing the geometric mean of overall benchmark scores to the Intel Core i7-2710QE processor. Benchmarks and system configurations used are listed on the reverse side of this flyer.

**Features and Benefits**

- Many embedded designs need high-end graphics, parallel processing and 3D performance. The AMD R-Series APUs excel in these designs, especially considering their low 35 Watt TDP vs. the 45 Watt TDP of the Core i7-2710QE.

- Display resolution support up to 4K x 2K at 60Hz enabling exceptional image quality on next generation display technology.

- Advanced graphics processing with support for DirectX® 11 and OpenGL 4.0 in an integrated device gives developers multiple opportunities to exploit the high performance of AMD R-Series APUs.

- Parallel processing support through OpenCL™ and DirectCompute enables the AMD R-Series GPU to be programmed to assist in tasks normally reserved for the CPU.

- Support for AMD Radeon™ Dual Graphics technology can combine the 3D graphics processing power of DirectX® 11 enabled AMD R-Series APU and an AMD Radeon™ Embedded GPU to deliver enhanced 3D graphics rendering performance.

- Ideal for embedded applications such as Digital Signage, Integrated x86 Set-Top-Box (xSTB), IP-TV, Information Kiosk, Point-of-Sale, and Casino Gaming.
## System Configurations

### AMD Embedded R-Series APU System Configuration

<table>
<thead>
<tr>
<th>Operating System 1</th>
</tr>
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<tbody>
<tr>
<td>Name: Windows® 7 Ultimate Edition</td>
</tr>
<tr>
<td>Version: 6.1</td>
</tr>
<tr>
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<tr>
<td>Name: Ubuntu Linux®</td>
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**Processor**  
AMD R-464L, R-272F APU

### Intel Core i7, i5, and i3 Processor System Configuration

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**Processor**  
Intel Core i7-2710QE, i5-252M, i3-2310M

### Hardware

**Motherboard:**  
AMD “Pumori” development board  
Insyde H2O RPM1000D  
Integrated on AMD R-Series APU  
AMD A75 Controller Hub  
**BIOS Info:**  
AMD “Pumori” development board  
Insyde H2O RPM1000D  
Integrated on AMD R-Series APU  
AMD A75 Controller Hub  
**Is BIOS Publicly Available:** No  
**North Bridge:**  
Integrated on AMD R-Series APU  
**South Bridge:**  
AMD A75 Controller Hub

### Memory

**Manufacturer and Type:** Elpida EBJ21UD8BFU0-GN-F  
**Quantity & Size each:** Qty (2) 2GB SO-DIMM  
**Total Memory Size:** 4GB  
**Quantity & Size each:** Qty (2) 2GB SO-DIMM  
**Total Memory Size:** 4GB

### Hard Drive

**Make and Model:** Hitachi HTS725016A9A364  
**Hard Drive Size:** 160GB  
**Transfer Mode:** SATA 3.0Gbps, NTFS  
**Make and Model:** Hitachi HTS725016A9A364  
**Hard Drive Size:** 160GB  
**Transfer Mode:** SATA 3.0Gbps, NTFS

### Video Card

**Graphics Adapter:** Integrated on AMD R-Series APU  
**Graphics Adapter:** Integrated on AMD R-Series APU

### Video Driver

**AMD 8.980.0.0**

### Other

- Actual memory speed was 800MHz (DDR3-1600) on the R-464L and 667MHz (DDR3-1333) on the R-272F

### Intel Core i7, i5, and i3 Processor System Configuration

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**Processor**  
Intel Core i7-2710QE, i5-252M, i3-2310M

### Hardware

**Motherboard:** iBase MI956F  
**BIOS Info:** AMI 2.10.1208  
**Is BIOS Publicly Available:** Yes  
**North Bridge:**  
Integrated on Intel Core ix (Sandy Bridge)  
**South Bridge:**  
Intel QM67 PCH

### Memory

**Manufacturer and Type:** Elpida EBJ21UD8BFU0-GN-F  
**Quantity & Size each:** Qty (2) 2GB SO-DIMM  
**Total Memory Size:** 4GB  
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**Make and Model:** Hitachi HTS725016A9A364  
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**Make and Model:** Hitachi HTS725016A9A364  
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### Video Card

**Graphics Adapter:** Integrated on AMD R-Series APU  
**Graphics Adapter:** Integrated on Intel Core ix (Sandy Bridge)

### Video Driver

**Intel 8.15.10.2361**

### Other

- Actual memory speed was 667MHz (DDR3-1333)

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**Performance Benchmark Suite**

- 3DMark® 06 v1.2.0
- 3DMark® Vantage v1.1.0

1. AMD Radeon™ Dual Graphics technology combines the graphics processing power of select AMD R-Series APUs and select discrete embedded AMD Radeon GPUs to deliver enhanced graphics performance. Dual graphics can support displays connected to either the APU or the discrete GPU. Windows Vista® or Windows® 7 operating system required.

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