IDT Multi-Port Memory Products

IDT is the industry’s leading supplier of multi-port memories, offering the most comprehensive and highest-performance products available.

The IDT Multi-Port Memories portfolio, aimed at the communications market includes more than 125 types of asynchronous and synchronous dual-ports, four-port and bank-switchable dual-ports ideal for switches, routers, hubs, equipment control, fibre channel line cards and RAID controllers.

What is a multi-port device? Multi-ports integrate memory and control logic to enable simultaneous access to a common central memory through two or four independent connections (Dual-ports and FourPorts).

Asynchronous Dual-Port RAMs — Integrated Device Technology is the leading Dual-port Ram supplier, integrating systems design experience together with high-performance circuit and Dual-port SRAM technology expertise to define Dual-port Ram products.

IDT asynchronous Dual-port memories with non-clocked control, inputs and outputs are the industry standards, with innovative features and speeds that provide superior value and performance to system level designs. IDT Dual-port memories feature simultaneous access capability, with a number of arbitration techniques available to the designer to prevent contention and system wait states. On-chip hardware arbitration, semaphore token passing and software arbitration allow the designer to select the most effective Dual-port memory for the application.

IDT is continuously working to reduce the cost of high performance shared SRAM based Dual-port memory solutions. We are and will continue to be the leading provider of Dual-port synchronous and asynchronous memories in the semiconductor industry.
## Asynchronous Dual-Port RAMs

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Core Voltage (V)</th>
<th>Bin Width (bfs)</th>
<th>Density (KB)</th>
<th>Pkg. Code</th>
<th>U/D Type</th>
<th>Access Time (ns)</th>
<th>Temp. Range</th>
<th>Organization</th>
<th>Function</th>
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<tbody>
<tr>
<td>7014</td>
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<td>12, 15, 17, 20, 25, 35, 45, 55, 70</td>
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<td>64K x 16</td>
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<td>15, 20, 25, 35, 45, 55, 70</td>
<td>I, C</td>
<td>64K x 8</td>
<td>Busy, Interrupt, Semaphore, Master, Slave</td>
</tr>
</tbody>
</table>

## Additional Information
- **Part Number**: Identification number for the component.
- **Core Voltage (V)**: Voltage required for the component to operate.
- **Bin Width (bfs)**: Width of the binary word.
- **Density (KB)**: Memory capacity in kilobytes.
- **Pkg. Code**: Package code for the component.
- **U/D Type**: Type of operation (Update/Deassert or Update/Assert).
- **Access Time (ns)**: Access time in nanoseconds.
- **Temp. Range**: Temperature range for operation.
- **Organization**: Addressing or output organization.
- **Function**: Specific function or mode of operation.
Asynchronous Dual-Port RAMs

Bank-Switchable Dual-Port RAMs — IDT synchronous Bank-Switchable Dual Ported RAMs offer increased density while retaining many of the features of true dual-ports including access to the shared array, separate clocks per port, 166 MHz operating speed, full-boundary counters, and pinouts compatible with the dual-port family.

FourPort RAMs — IDT FourPort RAMs are cost-effective low-power multi-ports that provide maximum functionality while taking up minimum board space.

Asynchronous Low-Power Dual-Port RAMs — IDT is a leading low-power dual-port RAM supplier, integrating low voltage design expertise together with high-performance circuit and dual-port SRAM technology.

Our family of low-power dual-port memories set the industry-standard, with innovative features and speeds that provide superior value and performance to system-level designs. IDT dual-port memories feature simultaneous access capability, with a number of arbitration techniques available to the designer to prevent contention and system wait states.

Bank-Switchable Dual-Port RAMs

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Core Voltage (V)</th>
<th>Bus Width (bits)</th>
<th>Density (Kb)</th>
<th>Pkg. Code</th>
<th>I/O Frequency (MHz)</th>
<th>Temp. Range</th>
<th>Organization</th>
<th>Function</th>
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<tr>
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<tr>
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<td>5.0 V TTL</td>
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<td>8</td>
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<td>PL52, PL54, PN64, PN64, PD64, PD64</td>
<td>3.3 V TTL</td>
<td>25, 35, 95</td>
<td>I, C</td>
<td>2K x 8</td>
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FourPort RAMs

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<tr>
<th>Part Number</th>
<th>Core Voltage (V)</th>
<th>Bus Width (bits)</th>
<th>Density (Kb)</th>
<th>Pkg. Code</th>
<th>I/O Frequency (MHz)</th>
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<th>Function</th>
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<tr>
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<td>133, 166, 200</td>
<td>I, C</td>
<td>128K x 36</td>
</tr>
</tbody>
</table>

Asynchronous Low-Power Dual-Port RAMS

- True Dual-Ported memory cells which allow simultaneous reads of the same memory location
- 1.8V core voltage (significantly reduces power consumption)
- ADIM (address/data multiplexed interface)
- Standard SRAM interface
- Organizations: 4K x 16 (SRAM), 8K x 16 (E2PRAM), 16K x 16 (SRAM)
- Low-updating and standby current: 15 mA typ. (operating current ~25 mA typ.)
- Multiple voltage configurations: 1.8V, 2.5V, and 3.3V
- Power supply isolation functionality to aid system power management
- Input Read and Output Drive registers
- Small package options (0.5mm-pitch bga50 1.8V, 2.5V)
- Reduced design complexity
- Shorter time-to-market

Asynchronous Low-Power Dual-Port RAMs — IDT is a leading low-power dual-port RAM supplier, integrating low voltage design expertise together with high-performance circuit and dual-port SRAM technology.

Our family of low-power dual-port memories set the industry-standard, with innovative features and speeds that provide superior value and performance to system-level designs. IDT dual-port memories feature simultaneous access capability, with a number of arbitration techniques available to the designer to prevent contention and system wait states.

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**ASYNCHRONOUS DUAL-PORT RAMS**

- **Synchronous Bank-Switchable Dual Ported RAMS** offer increased density while retaining many of
- **FourPort RAMs** — IDT Four-Port RAMs are cost-effective low-power multi-ports that provide maximum functionality while taking up minimum

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**Part Number** | **Core Voltage (V)** | **Bus Width (bits)** | **Density (Kb)** | **Plg. Code** | **I/O Type** | **I/O Frequency (MHz)** | **Temp. Range** | **Organization** | **Function**
---|---|---|---|---|---|---|---|---|---
71242 | 5 | 8 | 16 | 5032, 5052, 5064, 5094 | 5.0 V TTL | 20, 25, 35, 50 | I, C | 2K x 8 | Busy, Interrupt, Slave
7124 | 5 | 8 | 16 | L7C48, L7D48, L7F48, L7P48, L7G48, L7P8 | 5.0 V TTL | 20, 25, 35, 55, 100 | I, M, C | 2K x 8 | Busy, Slave
7143 | 5 | 16 | 32 | 5032, 5052, 5064, 5094, 50G48, 50LP92, 50L96 | 5.0 V TTL | 20, 25, 35, 55, 70, 90 | I, M, C | 2K x 16 | Busy, Slave
71V30 | 3.3 | 8 | 8 | 5044, 50G48 | 3.3 V TTL | 25, 35, 95 | I, C | 1K x 8 | Busy, Interrupt, Master
71V321 | 3.3 | 8 | 8 | 5032, 5082, 5064, 5094, 50P48 | 3.3 V LVTTL | 25, 35, 95 | I, C | 2K x 8 | Busy, Interrupt, Master
Synchronous Dual-Port RAMs — IDT Synchronous Dual-Port RAM memory cells allow access to simultaneous access of address from both ports.

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<tr>
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<th>Density (Kb)</th>
<th>Pkg. Code</th>
<th>I/O Type</th>
<th>U/O Type</th>
<th>U/O Frequency (MHz)</th>
<th>Temp. Range Organization Function Output Type</th>
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<td>130, 166</td>
<td>C</td>
<td>64K x 36 Collision Detect, Counters, Dual Clocks, Interrupt, JTAG, Sleep Mode</td>
</tr>
</tbody>
</table>
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What is a multi-port device?
Multi-ports integrate memory and control logic to enable simultaneous access to a common central memory through up to four independent connections (Dual-ports and Four-Ports).

Asynchronous Dual-Port RAM benefits
- Increased bandwidth (1-2x SRAM)
- Reduced design complexity
- Shorter time to market
- Solves bus matching issues from x8, x16, x32 up to x36 bus widths
- Allows mismatched voltage ports to be used together. 1.8V, 2.5V or 3.3V and 5V I/Os can be adapted
- Buffers component speed mismatch from DC to 100s
- 8 Kb to 18 Mb densities allow a wide range of applications

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Multi-Port Memory Products

IDT MULTI-PORT OVERVIEW

Product Description

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