

# Capacity On Demand 2.0 Buyer's Guide

Sun Fire™ E2900–E25K Servers



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# Overview

Today's computing environment requires IT managers to find new ways to do more with less. This means managing costs while meeting increasingly stringent service level agreements.

By providing instant access to additional hardware resources, Capacity On Demand 2.0 helps improve availability, increase utilization, and lower Total Cost of Ownership (TCO) in your data center with Sun Fire™ E2900, E4900, E6900, E20K, and E25K servers. Legacy support is also offered for Sun Fire™ 3800, 4800, 6800, 12K, and 15K servers.

## Capacity On Demand 2.0

COD 2.0 is a purchasing option that allows you to receive equipment with extra processors and memory preinstalled at the time of purchase. You can then activate and acquire those resources when you need them — with no disruption to operations — by purchasing Right to Use (RTU) licenses.

COD 2.0 provides a “pay when used” model. It is targeted at organizations that need extra capacity to meet future and continuous increase in demand.

## Temporary Capacity On Demand

Temporary COD or “T-COD” also provides you with access to additional system capacity and the ability to activate resources when needed. However, in this case, you may purchase temporary RTU licenses that are valid for one month and can deactivate those resources when they are no longer needed. Customers who purchase T-COD RTU licenses for 6 consecutive months will receive a permanent RTU license. Like COD 2.0, T-COD is designed to minimize operations disruptions.

T-COD provides a “pay per use” model. It is ideal for organizations that have periods of peak workload demand followed by periods of lower workload demands. COD 2.0 and T-COD are designed to provide key business advantages such as improved availability, increased system utilization, and reduced hardware acquisition costs.

## Increased Availability

COD 2.0 and T-COD improve server availability by allowing instant access to unlicensed resources with no disruption to operations. This “headroom” feature means that additional system resources that can be dynamically reconfigured into your production environment — without the need to reboot your system.

With the Sun Fire E2900–E6900, you can use up to four CPUs as “hot spares” and up to eight CPUs for the Sun Fire E20K and E25K. Once you have activated these spare CPUs, you have up to 30 days to purchase a permanent or temporary license.

Planned downtime for servicing or upgrades is virtually eliminated, as adding COD or T-COD resources can be performed during production. Unlicensed COD CPUs can also be used as hot spares should any CPU on that server fail.

## Higher Utilization

COD 2.0 permits you to activate additional resources in single CPU increments, which helps increase system utilization by better matching system usage with asset acquisition. This enables IT organizations to instantly scale to meet peak demands without having to pay for the entire amount until the extra capacity is needed.

COD 2.0 also helps reduce additional third-party software charges that are applied to active CPUs.

By utilizing only the specific number of CPU resources needed, you can minimize hardware and software acquisition and maintenance costs while maximizing system utilization for lower Total Cost of Ownership.

## Reduced Cost

COD 2.0 and T-COD enable organizations to purchase larger system configurations than are currently required at lower up-front costs. This allows customers to be prepared for growth without having to pay in advance!

There is no premium price for COD 2.0 or T-COD options over standard options and there is no time requirement to purchase RTU licenses. For data center environments with unpredictable growth or sudden increases in peak usage, COD 2.0 and T-COD provide a cost-effective method for adding reserve or growth capacity.

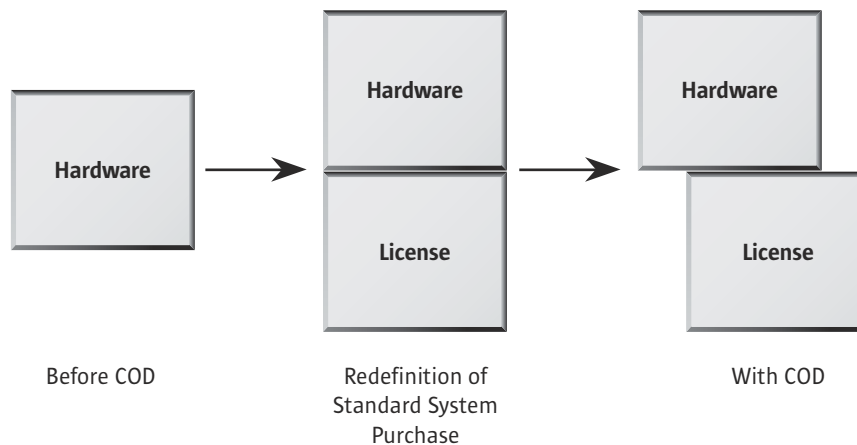
## Simplified

All Sun Fire E2900–E25K servers are ‘COD ready’. Because COD 2.0 and T-COD use the same hardware and software, you don’t have to choose between COD programs before installing resources into a system. You can have extra CPU resources installed and decide to activate those resources on a permanent or temporary basis at your convenience! Furthermore, you are not required to install remote system monitoring or generate system usage reports. The net result is a simple and flexible provisioning of hardware resources on demand!

## Hardware Licensing

Sun was the first to introduce the concept of on-demand hardware acquisition via “hardware licensing.” Traditionally, hardware (and other “hard” assets) came with the implicit right to use those resources. With COD resources, the right to use an asset is separated from the implicit ownership normally attributed to an asset.

Sun Fire E2900–E25K servers may be acquired or upgraded with COD CPU/Memory boards. COD CPU/memory boards are shipped fully configured with 4 CPUs and 16GB or 32GB of memory, which are activated and accessible when the customer purchases Right To Use (RTU) licenses.



# COD 2.0

## COD 2.0 Benefits

There are several reasons why an organization may choose to have a COD 2.0 server:

- A flexible solution for system acquisition and growth capability.
- Ability to purchase larger system configurations at lower up-front costs.
- Ability to add capacity in single-CPU increments to maximize utilization and minimize incremental costs.
- Instant access to additional system capacity.
- Additional capacity with no interruption to system operations
- RTU (right to use) COD licenses can be activated only when resources are needed. There is no requirement or time limit for the customer to purchase the RTUs.
- No requirement to provide system usage reports or to have remote system monitoring. COD 2.0 self-monitors usage of COD resources.

## COD 2.0 Components

There are three components to any COD 2.0 system:

1. **COD Hardware.** A COD Sun Fire server is any Sun Fire E2900, E4900, E6900, E20K, or E25K server that has one or more new COD CPU/memory boards installed. COD CPU/memory boards are priced significantly lower than the standard (non-COD) CPU/memory boards since the COD RTU licenses must be purchased separately. Therefore, COD provides much lower upfront costs to have “on demand” resources installed in Sun Fire servers.
  - The Sun Fire E2900 server offers factory delivered systems with a single COD board and a minimum one CPU RTU purchase requirement. Additional COD boards may be added to new, non-COD Sun Fire E2900 or V1280 servers via the Customer Ready Systems Program (CRS) or as field upgrades. No RTU purchase requirements exist for add-on COD boards.
  - The Sun Fire E4900–E25K servers may be factory configured with COD Uniboards so long as one non-COD board is ordered with each system. There are no minimum RTU order requirements at purchase. COD Uniboards are available as options for the installed base of Sun Fire 4800–E25K servers.

2. **COD 2.0 Software.** COD 2.0 software is included in Sun Fire E2900–E25K server System Controller software, therefore all Sun Fire E2900–E25K servers are “COD ready”. COD 2.0 system software provides self-monitoring of the COD server by only allowing ‘licensed’ COD processors to operate. With self-monitoring, no remote usage reporting or monitoring is required with COD 2.0 systems. COD command line interface commands manage the COD resources and install COD license keys into the system.

For Sun Fire E2900 servers, COD 2.0 software is included with the firmware version 5.18.0 or higher. For Sun Fire E4900/E6900 servers, COD 2.0 software is included with the firmware version 5.16.0 or higher. For Sun Fire 20K and 25K servers, COD 2.0 software is included in System Management Services (SMS) 1.4.1 release or higher. Existing Sun Fire servers need to upgrade the System Controller software for COD boards to be recognized (Minimum version for the Sun Fire V1280 server is 5.18.0; Sun Fire 4800/6800 servers is 5.14.0; Sun Fire 12K/15K servers is SMS 1.3).

3. **Right To Use (RTU) Licenses.** RTU licenses are ordered with a separate part number when COD processors are ready to be used. When COD 2.0 RTU licenses are ordered, the customer will receive a COD 2.0 license certificate card that contains a serial number and instructions on contacting Sun’s License Processing System (LPS) centers to receive the COD 2.0 license keys for the COD RTU licenses purchased. If more than one RTU license has been purchased, it is possible to request the LPS center to combine the RTUs into a single license key for easier administration. COD 2.0 licenses keys are to be entered into the system using the COD 2.0 software Command Line Interface commands.

Note that the RTUs for the Sun Fire E2900 Server COD boards are keyed only to the Sun Fire E2900/V1280 servers. Attempts to use a Sun Fire E2900 Server RTU on a Sun Fire E4900–E25K server will result in a failed CPU.

- The Sun Fire E2900 RTU part number is XCOD-E2900-RTU
- The Sun Fire E4900–E25K RTU part number is XCOD-2-RTU

## “Headroom” Option

When COD 2.0 processors are needed, RTU licenses are ordered and installed as described in the COD 2.0 section above. To provide instant access to COD resources while RTU licenses are being purchased, COD 2.0 allows a limited number of available COD processors to be turned on instantly using the headroom feature. Upon activation of the COD headroom processors, the COD 2.0 software will provide repeating warning messages that COD headroom processors are in use.

Once the appropriate number of COD RTU licenses have been installed, the warning messages will cease. Headroom processors are limited to up to four processors on Sun Fire E2900–E6900 servers and up to eight on Sun Fire E20K and E25K servers. Per the terms of the COD 2.0 sales contract agreement, customers are required to purchase the RTU license for activated COD headroom processors within 30 days.

Headroom COD CPUs can also be used as “hot spares” for existing COD CPUs that have already been licensed. Therefore, should a licensed COD CPU fail, customers can use their spare unlicensed COD CPUs immediately to replace the failed COD CPUs. So long as the number of active COD CPUs equals the number of RTUs purchased, there are no additional charges required.

The Sun Fire E2900 servers that ship with a single COD CPU/memory board (and no other boards) utilize the headroom COD feature straight from the factory. When a customer orders a single board Sun Fire E2900 server with a minimum of one RTU, the factory will ship the system with one RTU activated via the Headroom option. When the customer receives the system, he needs only to permanently activate the one (or more) RTUs with the RTU licenses that were purchased at the same time as the server.

# Temporary Capacity On Demand (T-COD)

## T-COD Benefits

Temporary COD (T-COD) allows customers to purchase 30 day RTUs for their existing COD resources on Sun Fire E4900–E25K servers (the Sun Fire E2900 server does not support T-COD).

T-COD provides unique benefits above those offered with COD 2.0. In particular, it provides lower costs by allowing customers to activate CPUs during those times when they are needed most and then de-activate CPUs when they are no longer needed.

Additional benefits of T-COD are as follows:

- Simplified “on demand” acquisition model using the same underlying hardware and software as COD 2.0
- Ability to purchase larger system configurations at lower up-front costs.
- Ability to add capacity in single-CPU increments to maximize utilization and minimize incremental costs.
- Elimination of the requirement to provide system usage reports or to have remote system monitoring. COD 2.0 self-monitors usage of COD resources.
- RTU (right to use) COD licenses can be activated only when resources are needed. There is no requirement or time limit for the customer to purchase the RTUs.

Like COD 2.0, T-COD provides access to additional system capacity with the ability to activate resources when needed by purchasing temporary RTU licenses. Also, T-COD is similar to COD 2.0 because it is designed so that CPU/memory can be activated with no disruption to operations.

Unlike COD 2.0, T-COD enables those resources to later be de-activated when no longer needed. T-COD is based on a “pay per use” model. It is ideally suited for organizations that have periods of peak workload demand followed by periods of lower workloads.

## Activation and Deactivation of T-COD RTU Licenses

T-COD can only be ordered by a customer calling their local Sun Center directly. For local Sun Center number, see [www.sun.com/datacenter/cod](http://www.sun.com/datacenter/cod). The customer must have a Purchase Order (PO) available that covers the potential cost of the requested number of RTUs for a period of six months. Once the PO has been processed, the Sun Center will generate the T-COD license key and e-mail it to the customer, who can then install it.

T-COD licenses are purchased on a per CPU basis and the minimum period is one month. As the T-COD license is PO driven, the maximum time a customer can have a specific T-COD license is 6 months, which is the maximum life of a PO. If a customer purchases T-COD RTUs for six consecutive months, they will take ownership of the resource. Sun Services will remove the temporary license on-site and install a permanent license.

When the customer wants to de-activate CPUs and terminate T-COD licensing, they contact the Sun Center to request termination of the T-COD license. The Sun Centers stop the billing on the next month's boundary and dispatch Sun Services to remove the license from the server at the customer site.

- The T-COD RTU part number is XCOD-2-TMP
- The T-COD permanent RTU part number is XCOD-2-PRM. This RTU part number is used following six consecutive months of T-COD usage.

## COD 2.0 and T-COD Comparison

	COD 2.0	T-COD
<b>Systems</b>	Sun Fire E2900, E4900, E6900, E20K, and E25K	Sun Fire E4900, E6900, E20K, and E25K <i>Sun Fire E2900 does not support T-COD</i>
<b>Required Software</b>	<ul style="list-style-type: none"> <li>• Solaris™ 8 2/04</li> <li>• Solaris 9 4/04 or later</li> <li>• Sun Fire 20K/25K servers: SMS 1.4.1 or higher</li> <li>• Sun Fire E4900/E6900 servers: System Controller firmware 5.16.0 or higher</li> <li>• Sun Fire E2900 servers: System Controller firmware 5.18.0 or higher</li> </ul>	
<b>Required Hardware</b>	UltraSPARC® IV COD CPU/Memory board(s)	
<b>RTU Licenses</b>	Permanent, once activated	Activated on a per-month basis, convert to permanent licenses if activated for more than six consecutive months
<b>Instant-Activation “Headroom” Option?</b>	Yes	No
<b>Typical Reason to Choose this Option</b>	Expectation that workloads will increase and continue at higher levels	Expectation that workloads will increase temporarily or seasonally, then decline

## Conclusion

Capacity On Demand empowers UltraSPARC IV Sun Fire Enterprise server customers by offering them a simple way to manage resources and costs without service disruption or oppressive remote system monitoring.

With COD 2.0, customers are in control. They can scale their systems and costs from a single, multi-threaded processor on a Sun Fire E2900 Server up to 72 processor Sun Fire E25K server when it is convenient for the customer. And, with T-COD, customers can even turn off the resources when their workloads return to normal levels.

Sun Microsystems has the leader in Capacity On Demand starting back in 1999 with COD 1.0 on the Sun Enterprise 10000 server and extending this leadership to the new generation of products with COD 2.0. Sun's objective is simple: to simplify the datacenter and empower our customers by providing the best and most innovative products it can.

### For More Information

To find out more about COD 2.0, T-COD and Sun Fire midrange and high-end servers, contact your Sun sales representative, Sun authorized reseller or, in the U.S., visit the Sun<sup>SM</sup> store at <http://sun.com/store>.

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