



## PRIMERGY CUSTOMER INFORMATION BULLETIN

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**Number/Revision:**

PY-CIB068-01

**Issue Date:**

June 16, 2021

**Title:**

Linux OS - Memory error recorded in syslog

**Applies to:**

- PRIMERGY servers as listed below:  
RX1330 M1 / LX1430 M1 / TX1310 M1 / TX1320 M1 / TX1330 M1  
RX1330 M2 / TX1320 M2 / TX1330 M2  
RX1330 M3 / TX1310 M3 / TX1320 M3 / TX1330 M3  
RX1330 M4 / TX1320 M4 / TX1330 M4  
RX2510 M1 / RX2520 M1 / RX2530 M1 / RX2540 M1 / RX2560 M1  
GX2460 M1 / TX2540 M1 / TX2560 M1  
BX2560 M1 / BX2580 M1 / CX2550 M1 / CX2570 M1  
RX2510 M2 / RX2530 M2 / RX2540 M2 / RX2560 M2 / TX2560 M2  
BX2560 M2 / BX2580 M2 / CX2550 M2 / CX2570 M2  
RX4770 M1 / RX4770 M2 / RX4770 M3 / RX4770 M4  
RX2520 M5 / RX2530 M5 / RX2540 M5 / TX2550 M5

**Effective Duration:**

Permanent

**Summary:**

In the Linux OS environment, memory read errors and scrubbing errors may be written to the syslog during system operation.

**Actions:**

Check the hardware log (SEL) and replace the memory only if the memory error is logged in the iRMC.

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### Details:

- Symptoms

If the Linux EDAC (Error Detection and Correction) function is enabled when a memory Correctable Error occurs, the Linux log (/var/log/messages, etc.) may report a Correctable Error. It is only recorded in the Linux log and has no impact on the system.

### Message Example

```
kernel: mce: [Hardware Error]: Machine check events logged
kernel: EDAC MC1: 1 CE memory scrubbing error on PU_SrcID#0_Ha#0_Chan#1_DIMM#1
kernel: EDAC MC1: 1 CE memory read error on CPU_SrcID#0_Ha#0_Chan#1_DIMM#1
```

- Occurrence Conditions
  - PRIMERGY series as included in the affected products list
  - Running Red Hat Enterprise Linux 6.5 or later
  - EDAC driver enabled (default)

- Cause

Linux OS has a hardware independent monitoring function using the EDAC driver. This EDAC driver detects correctable errors in memory and records memory scrubbing errors, memory read errors, etc. in the OS message log.

In the PRIMERGY servers, there is a function of detecting memory errors by BIOS. When a memory error occurs, the BIOS will determine the necessity of memory replacement, and only when replacement is necessary, the error will be recorded in SEL.

- Countermeasures

Check the hardware log (SEL) and replace the relevant memory only when one of the following memory errors is recorded.

- Memory error
  - [Too many correctable memory errors]
  - [Memory module failure predicted]
  - [Memory module error]

In case of an error that requires memory replacement, the error is recorded in the SEL.

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The memory scrubbing error, correctable error and memory read errors detected by the OS will be corrected and do not need to be replaced unless the error is recorded in the hardware error log (SEL).

- Proactive countermeasure

For systems reporting EDAC errors, disable the detection by using one of the methods below.

### 1) Boot option change

To prevent monitoring system memory related output while EDAC function is enabled, boot option “mce=dont\_log\_ce” or “mce=ignore\_ce” can be used.

<https://access.redhat.com/solutions/367773>

[https://github.com/torvalds/linux/blob/master/Documentation/x86/x86\\_64/boot-options.rst](https://github.com/torvalds/linux/blob/master/Documentation/x86/x86_64/boot-options.rst)

Changing the boot option prevents EDAC from outputting to the syslog. Regardless of change, it will not effect on recording on hardware log (SEL).

### 2) Applying BIOS with related changes (only for targeted models)

Applying the new BIOS will prevent the OS from monitoring correctable errors even though the EDAC function is enabled.

Except for the models indicated below, there is no plan to update the monitoring functionality of other PRIMERGY models.

#### (1) RX2510 M2 / RX2530 M2 / RX2540 M2 / RX2560 M2 / TX2560 M2

- R1.28.0 or later, corrected in BIOS.

#### (2) BX2560 M2 / BX2580 M2 / CX2550 M2 / CX2570 M2

- R1.19.0 or later, corrected in BIOS.

#### (3) RX2520 M4 / RX2530 M4 / RX2540 M4 / TX2550 M4

- R1.33.0 or later, corrected in BIOS. (Except for the case with Silver, Bronze CPU (\*)).

#### (4) RX4770 M3

- R1.23.0 or later, corrected in BIOS.

#### (5) RX4770 M4

- R1.21.0 or later, corrected in BIOS.
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(6) RX2520 M5 / RX2530 M5 / RX2540 M5 / TX2550 M5

- Not applicable. (Except for the case of Silver, Bronze CPU(\*)).

The CX25x0 series has been disabled since the M4, and the RX, TX25 x0 series has been disabled since the M6, so it is not applicable.

1 socket CPU model (e.g. current units: RX TX13x0 M1, M2, M3, M4) will continue to be target of error detection due to CPU specification.

\*Excerpted from the general web publication (Notes on the EDAC function installed on Red Hat Enterprise Linux 6.5 or later)

In the following models, Silver and Bronze CPUs (\*2) do not support the function to disable error monitoring by EDAC. Therefore, when this CPU is installed, errors are detected by the EDAC driver even in an environment where the latest BIOS is applied.

RX2520 M4 / RX2530 M4 / RX2540 M4 / TX2550 M4  
RX2520 M5 / RX2530 M5 / RX2540 M5 / TX2550 M5

(\*2) CPU type can be confirmed by referring to each system configuration diagram or product catalog.

- How to recover after trouble occurrence

If there is no memory-related error recorded in the hardware log (SEL), no hardware needs to be replaced.

Verify that the server is running the latest BIOS version.

If the customer has a monitoring software that monitors the OS syslog, please exclude memory scrubbing error and the memory read error from the monitor tool.

### Revision History:

REVISION	DATE	CHANGE SUMMARY
000	May 10, 2021	Initial Release
001	June 16, 2021	Update Products and Proactive Countermeasures

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