

System Failure Error Messages

This section covers other types of error messages that you may encounter, such as bus, parity, timeout, unexpected, and unknown error messages.

These error messages result when the system image crashes, either from a hardware or a software failure. To access these messages, use the bootstrap program.

When you encounter a timeout, bus error, or unknown error message, you must run the **k** stack trace command at the bootstrap mode prompt (>) to display the stack trace results.

In the following example, a timeout error message appears, the **k** stack trace command is run, but no stack trace results:

```
Timeout (control reg=0xCF10) Error, address: 0xFFFFFFFF8 \  
at 0x317D49E (PC)  
>k  
No stack to dump (NULL frame pointer)
```

In the following example an unknown error message appears, the **k** stack trace command is run, and a stack trace results:

```
Unknown (control reg=0x10) Error, address: 0xD0D0D0D at 0x313DC22 (PC)  
>k  
Current PC: 0x313DC22  
FP: 0xE6620 RA: 0x31411A8  
FP: 0xE6634 RA: 0x3123D1C  
FP: 0xE6650 RA: 0x312303A  
FP: 0xE6668 RA: 0x3133664  
FP: 0xE667C RA: 0x31337D2  
FP: 0xE6694 RA: 0x31349DA  
FP: 0xE66A0 RA: 0x3014B4C
```

Table 6 describes the fields in this sample stack trace.

Table 6 Stack Trace Fields

| Field | Description |
|--------------------------|---|
| Current PC: 0x313DC22 | Address at which the failure occurred. This address is also called the program counter (PC). |
| FP: 0xE6620 | Stack frame pointer. |
| RA: 0x31411A8 | Program counter of calling function saved in stack frame. This value is used to trace the flow of software function calls leading to the failure. |

After you obtain the stack trace, use the **i** (initialize) command before you manually boot up the system image. Then use the **show version** command (when possible) to identify the software release and version number for use by technical staff.

On systems that have a hardware or virtual (software) configuration register and the boot bits (lowest four bits) set to a value greater than 0, the system will repeatedly try to boot up the appropriate system image from resident ROMs, Flash memory, or a server over the network. If the booting is successful, the system prompt appears. You then can use the **show stack** command to obtain the stack trace.

In cases where the router crashes repeatedly, send a Break character from the console keyboard to obtain the bootstrap mode prompt. Then modify the configuration register boot bits to zero, enter the **i** (initialize) command, and manually attempt to bootstrap the system image. If it crashes, use the **k** stack trace command.

Error Message

Bus Error control register: [hex]
non-local memory transaction timeout
Bus Error, address: [hex] at [hex] (PC)

Explanation An invalid memory address is accessed, either because of a software bug or because a boot of an incompatible software image was attempted.

Recommended Action If the error occurred when you tried to boot up a system image over the network or from reprogrammed Flash memory, a probable reason could be the use of a wrong or incompatible system image. Look in the appropriate documentation to find out which system image to use. If you still need assistance, contact your technical support representative with the following details:

- Name of the system image file used for booting (as obtained from the technical support representative)
- Product name and configuration
- **show version** output from any bootable ROM-based image available on the system (a bootstrap image, for example)

If the error occurred while trying to boot up a built-in ROM-based image, contact your technical support representative with the following details:

- Product name and configuration
- Any hardware/software upgrades that were made prior to the failure
- Anything else that you think will help your technical support representative diagnose the problem
- Any stack trace, if obtainable, using the **k** command at the bootstrap prompt (<)

If the error occurred while the system was operational, contact your technical support representative after gathering the following information:

- Any stack trace obtained using the **k** command at the bootstrap mode prompt (>); or if the system successfully rebooted itself, **show stack** output
- **show version** output obtained after rebooting the system image in which the failure occurred

Error Message

Bus Error control register: [hex]
ram byte ([value]) parity error
Bus Error, address: [hex] at [hex] (PC)

Explanation Memory corruption or failure has occurred, most likely because of a hardware problem or by disturbances such as power line problems.

Recommended Action Reboot the system and observe whether the problem recurs. Also ensure that the power line has appropriate protection equipment. If the problem is a one-time occurrence, the cause could be a power line disturbance.

Error Message

Bus Error control register: [hex]
system overtemp
Bus Error, address: [hex] at [hex] (PC)

Explanation Temperature exceeded the operating range, most likely because of a ventilation, air-conditioning, or hardware problem.

Recommended Action Power off the system and give it time to cool. Check room ventilation and air conditioning. Also ensure that system air-flow grids are not blocked and that blowers are operational. Call your technical support representative if a blower needs replacement.

Error Message

Local Timeout (control reg=[hex]) Error, address: [hex] at [hex]
(PC)

Explanation An invalid memory address is accessed, either because of a software bug or because a boot of an incompatible software image was attempted.

Recommended Action Refer to the Recommended Action for the first “Bus Error control register” message in this section.

Error Message

Multibus Timeout (control reg=[hex]) Error, address: [hex] at [hex] (PC)

Explanation An invalid memory address is accessed, either because of a software bug or because of incompatible microcode in a multibus card.

Recommended Action Reseat the card. If this message recurs, call your technical support representative for assistance.

Error Message

Parity (control reg=[hex]) Error, address: [hex] at [hex] (PC)

Explanation Memory corruption or failure has occurred, most likely because of a hardware problem. Disturbances such as power line problems are also possibilities.

Recommended Action Reboot the system and observe whether the problem recurs. Also ensure that the power line has appropriate protection equipment. If the problem is a one-time occurrence, the cause could be a power line disturbance.

If this message recurs, call your technical support representative for assistance.

Error Message

Shared Memory Parity Error
shared memory control register = [hex]
error caused by slot [dec] access in byte(s) [dec]

Shared Memory Parity Error
shared memory control register = [hex]
error caused by MPU access in byte(s) [dec]

Explanation Shared (I/O) memory failure or corruption occurred during access by the processor. This problem is most likely due to a hardware failure or by disturbances such as power line problems.

Recommended Action Reboot the system and observe whether the problem recurs. Also ensure that the power line has appropriate protection equipment. If the problem is a one-time occurrence, the cause could be a power line disturbance.

Error Message

Unexpected exception to CPU vector [dec], PC = [hex]

Explanation Either a hardware or a software problem has occurred.

Recommended Action Refer to the Recommended Action for the first “Bus Error control register” message in this section.

Error Message

Unexpected vectored interrupt (vector offset [dec])

Explanation Either a hardware or a software problem has occurred.

Recommended Action Refer to the Recommended Action for the first “Bus Error control register” message in this section.

Error Message

Unknown (control reg=[hex]) Error, address: [hex] at [hex] (PC)

Explanation Either a hardware or a software problem has occurred.

Recommended Action Refer to the Recommended Action for the first “Bus Error control register” message in this section.