**# Title:**

Code First - Arm CPER Processor Error Types not defined

**# Status:**

Draft

**# Document:**

UEFI Specification 2.9 (Future Errata)

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**# Summary of the change**

**Problem Statement:**

The bit definitions for the Type field in ARM Processor Error Information Structure is not defined. See N.2.4.4.1 ARM Processor Error Information, Table N-17 ARM Processor Error Information Structure, UEFI specification version 2.9, page 2365

Proposal:

There is a patch on the edk2 mailing list that adds the CPER definitions for ARM at <https://edk2.groups.io/g/devel/message/86558> The patch is currently defining the Type field bits as below

Bit 0: Cache Error

Bit 1: TLB Error

Bit 2: Bus Error

Bit 3: Micro-architectural Error

Linux seems to be already doing this as well:

<https://elixir.bootlin.com/linux/latest/source/include/linux/cper.h#L273>

**# Benefits of the change**

We need to update the UEFI spec to define these values to be consistent with FW/OS implementations.

**# Impact of the change**

* **Platform FW:**
  + Use the defined values, per the EDK submitted patch
* **Operating Systems:**
  + Use the defined values. Linux already doing this.
* **Compliance tests**
  + None

**# Detailed description of the change [normative updates]**

* Insertions highlighted
* Removals in ~~red~~

N.2.4.4.1 ARM Processor Error Information

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**Table N-17 ARM Processor Error Information Structure**

|  |  |  |  |
| --- | --- | --- | --- |
| **Mnemonic** | **Byte Offset** | **Byte Length** | **Description** |
| Version | 0 | 1 | 0  (revision of this table) |
| Length | 1 | 1 | 32  (length in bytes) |
| Validation Bit | 2 | 2 | The validation bit mask indicates whether or not each of the following fields is valid in this section.  Bit 0 – Multiple Error (Error Count) Valid  Bit 1 – Flags Valid  Bit 2 – Error Information Valid  Bit 3 – Virtual Fault Address  Bit 4 – Physical Fault Address  All other bits are reserved and must be zero. |
| Type | 4 | 1 | Bit 0 - Cache Error  Bit 1 - TLB Error  Bit 2 - Bus Error  Bit 3 - Micro-architectural Error  All other values are reserved |
| … | … | … | … |