FMA Domain IO Services Specification

Revision 0.1.2

05/05/08

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1 Introduction

In order to support FMA integration for I/O service domains, the logical domain manager (LDM) needs to provide a set of services to the fault management architecture (FMA). Those services allows FMA to request the owner of a particular host bridge device/port. So that FMA can filter and send events to a particular LDOM.

The design and implementation are similar to the LDM services that are made available to FMA, which specified in the document of FMA Domain Services Specification. Refer to FWARC/2006/141 and FWARC/2006/055 for more information.

2 FMA IO Domain Service version 1.0

This service provides the capability to return the owner of a requested device. This section describes version 1.0 of the protocol used for this domain service.

2.1 Service ID

Service ID	Description
"fma-io-domain-service"	Io domain service for fault management

2.2 FMA IO Domain request message

All FMA IO Domain requests use the following payload format:

Byte offset in payload	size in bytes	field name	Description
0	8	req_num	Request number
8	4	msg_type	Message type
12	8	rsrc_address	Resource address

```
typedef struct {
        uint64_t      req_num;
        uint32_t      msg_type;
        uint64_t      rsrc_address;
} fma_io_service_req_t;
```

2.2.1 Request number

The request number (req_num) field in the both the request and response messages is used to match a response with its request. It is implemented as a monotonically increasing number, included in each request message, that uniquely identifies that request .

Responses to requests are expected to use the same request number so that they can be paired with their original request.

New requests may be issued without waiting for a response to a preceding request. The underlying transport protocol is responsible to ensure reliable, in-order and un-duplicated message packets.

Requests should be processed in the order received.

2.2.2 Message type

The following constants are defined for the FMA IO request message's `msg_type` field:

msg_type	Value	Operation
FMA_PCI_REQ_LDOM	0	Request LDOM's id of a PCI root complex
FMA_NIU_REQ_LDOM	1	Request LDOM's id of a niu

These two message types share a common request payload format, and all return the same response message type, which carries success status of the request as well as the LDOM's id string if owner is existed. Each of the request messages is described as follows;

2.2.3   FMA_PCI_REQ_LDOM

This command requests LDOM's id by a PCI root complex port number in payload.

2.2.4 FMA_NIU_REQ_LDOM

This command requests LDOM's id by a NIU's address in payload.

2.3 FMA IO response message

The response message format for FMA CPU requests is as follows:

Byte offset in payload	size in bytes	field name	Description
0	8	req_num	Request number
8	4	result	Result of request
12	4	reserved	
16	8	virt_rsrc_address	virtual resource address
24	payload-24	Ldom id	Ldom's name (null terminated)

```
typedef struct {
        uint64_t req_num;
        uint32_t result;
        uint32_t reserved;
        uint64_t virt_rsrc_address;
        uint8_t ldom_id[];
} fma_io_resp_t;
```

This message type is returned in response to one of the FMA_PCI_REQ_LDOM, FMA_NIU_REQ_LDOM.

The result codes are defined as follows:

Name	Value	Definition
FMA_IO_RESP_OK	0	Request succeeded (RC is bound and LDOM id is in payload)
FMA_IO_RESP_FAILURE	1	Request failed
FMA_IO_RESP_ILLEGAL	2	Request failed Resource does not exist
FMA_IO_RESP_UNASSIGNED	3	Request succeeded(RC has no owner)

Appendix A: Capability Table

This table lists the capabilities described in this document, and which need to be added to a Domain Services registry.

Service ID	Description
fma-io-domain-service	IO Domain service for fault management