1394 HCI PEN

1394 Open HCI
Self ID Receive
Physical Requests

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Agenda

- **Self ID DMA Controller**
  - **Self ID Packets on 1394**
  - **Self ID DMA operations**
- **Physical Requests**
  - **What is a Physical Request?**
  - **Physical Requests handling**

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Self ID DMA Controller

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Self ID Packets on 1394

- During bus reset processing, each node sends out a Self-ID packet.
- A SelfID packet contains 1394 node information such as the Node Number and Phy Speed.
- The Serial Bus Manager uses the Self-ID information to build the speed map and topology map.

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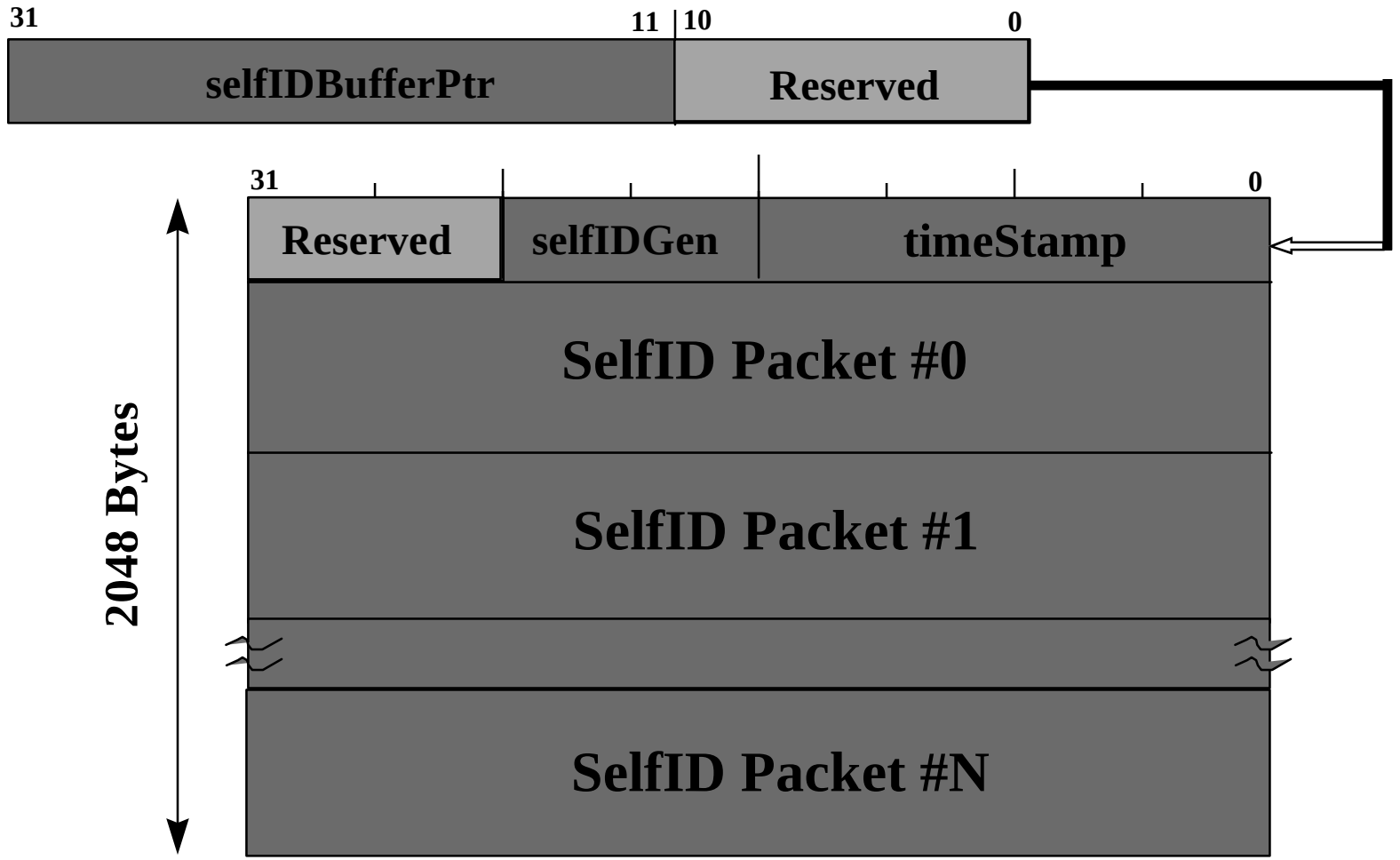
Self ID Buffer Pointer Register & Buffer Format



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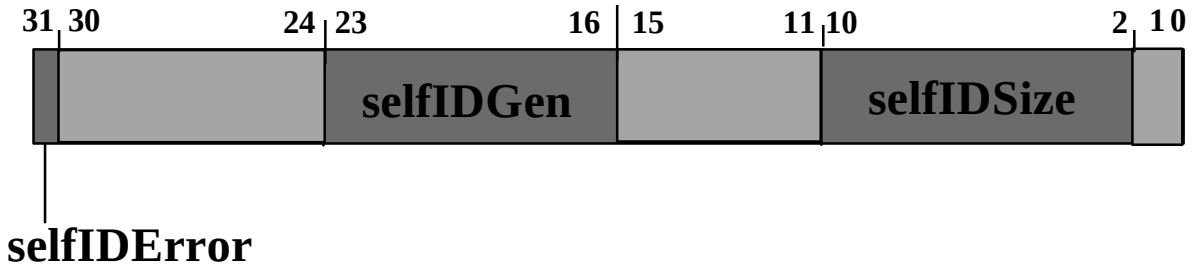
Self ID Count Register



- SelfIDSize is the length in quadlets of selfID data
- SelfIDGeneration is incremented after the bus reset
- SelfIDError - any error during SelfID reception

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Other Issues

- **Enabling**
  - **RcvSelfID bit in the LinkControl register**
- **Interrupts**
  - **SelfIDcomplete bit in the IntEvent register**
- **Self IDs Outside of Bus Initialization**
  - **go to AR DMA in PHY packet format**

Physical Requests

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What is Physical Request?

- **Host Memory Addresses**
  4 GB <=> 32 bits
- **Compare-Swap Registers of Isochronous Resource Management**
- **1KB of the Configuration ROM Address Space**
- **Other requests are directed to AR DMA**

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4GB Host Memory Reads & Writes

- 48'h0000xxxxxxxx
- the lower 32 bits are used as the memory address of the transaction.
- Filter registers are used to determine if the request will be accepted.

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4 CSRs of Isochronous Resource Management

- 48'hFFFFF000021C - 48'hFFFFF0000228
- Mapped to the corresponding HC registers
  - BUS_MANAGER_ID
  - BANDWIDTH_AVAILABLE
  - CHANNELS_AVAILABLE_HI
  - CHANNELS_AVAILABLE_LO

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1KB of the Config ROM Address Space

- 48'hFFFFF0000400 - 48'hFFFFF00008FC
- Mapped to/by the corresponding HC registers
  - Config ROM header
  - Bus ID
  - Bus options
  - Global unique ID
  - Configuration ROM
- Only quadlet reads are permitted.
- Larger ROMs can be emulated by the AR DMA.

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Request Filter Registers

- 64 b AsynchronousRequestFilter Register
- 64 b PhysicalRequestFilter Register
- The request filters are not applied to quadlet read requests directed at the Config ROM nor to accesses directed to the isochronous resource management registers.

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Other Issues

- Physical request handling never generates an interrupt.
- On a bus reset, all pending physical requests are discarded.
- If the target is busy the MaxPhysRespRetries in the ATRetries Register gives the number of retries.