1394 HCI OPEN

Byte Swapping

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Endians

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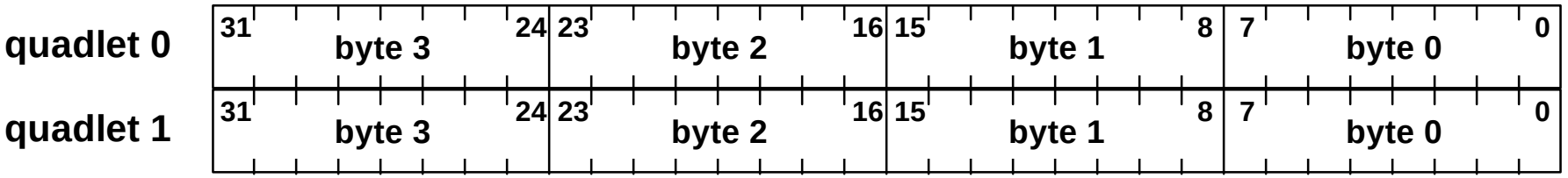
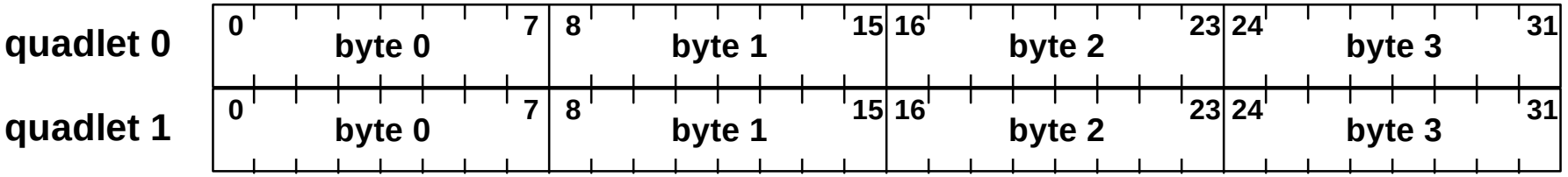
Little Endian



Big Endian



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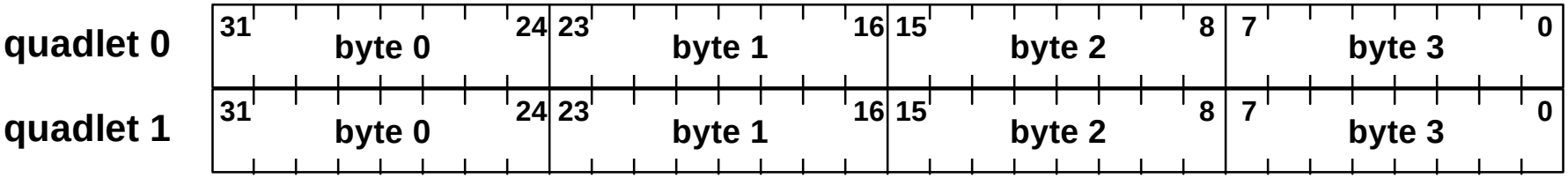
Open HCI Endian



- Bits numbered in little endian order
  - Doesn't really matter
  - Simply a concession to little endian busses that number from right to left (e.g., PCI)
- Bytes in big endian order

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Byte Swap and Addressing

- When data is sent/received, the first data byte in the packet comes from or goes to the address given in the header.
- Subsequent bytes are from/to bytes in ascending address order.
- *noByteSwapData* tells the HC how bytes are numbered within data quadlets
  - 0 means right to left (little endian)
  - 1 means left to right (big endian)

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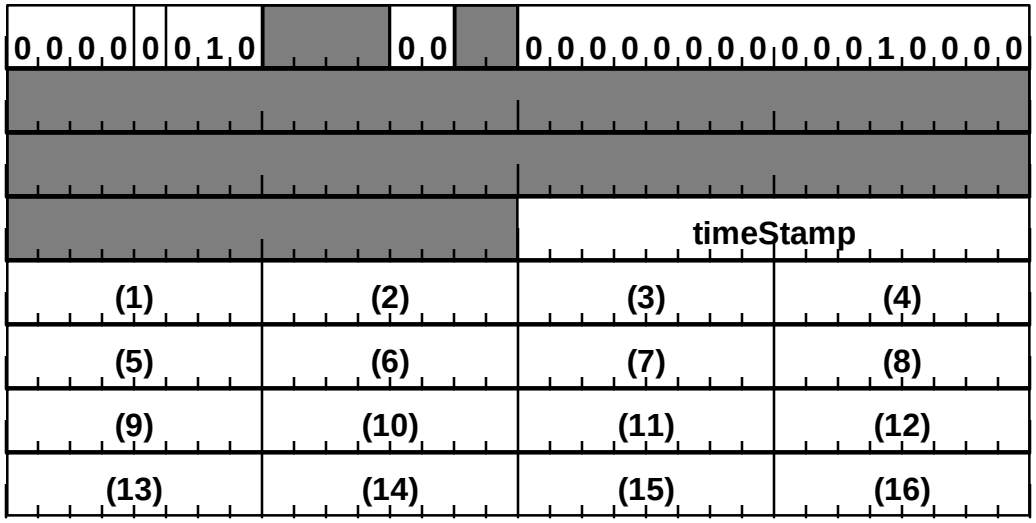
Sending Headers on 1394

- **Header bytes are taken from descriptors and sent in big endian order (left to right)**



OUTPUT_MORE_Immediate

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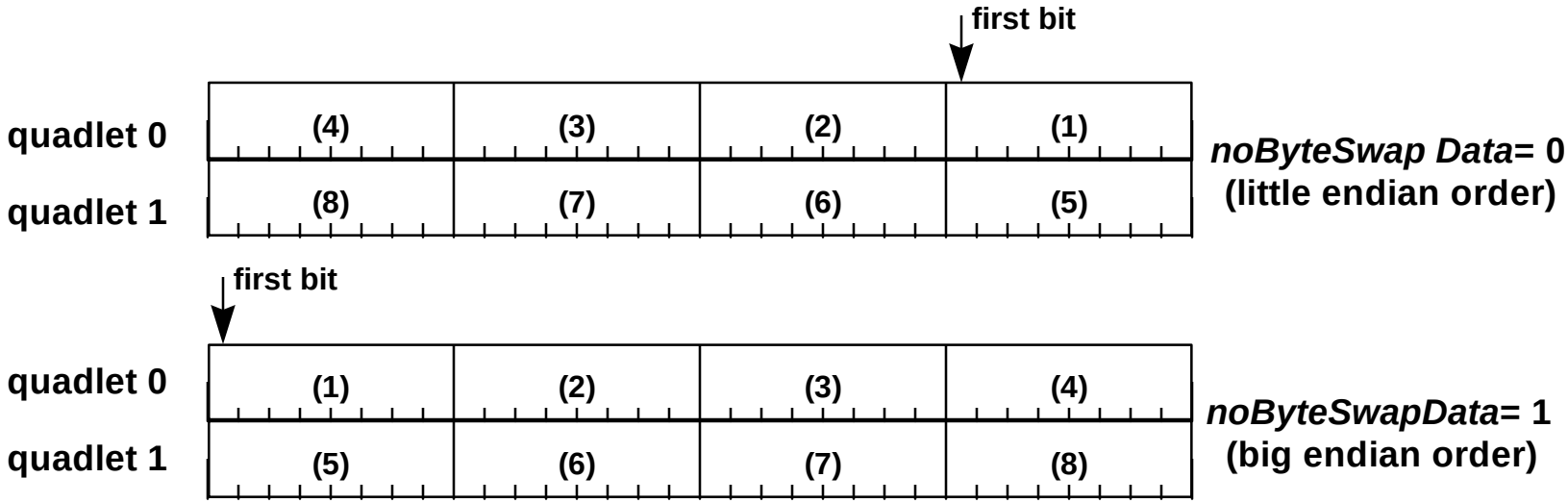
Sending Data on 1394 (cont.)



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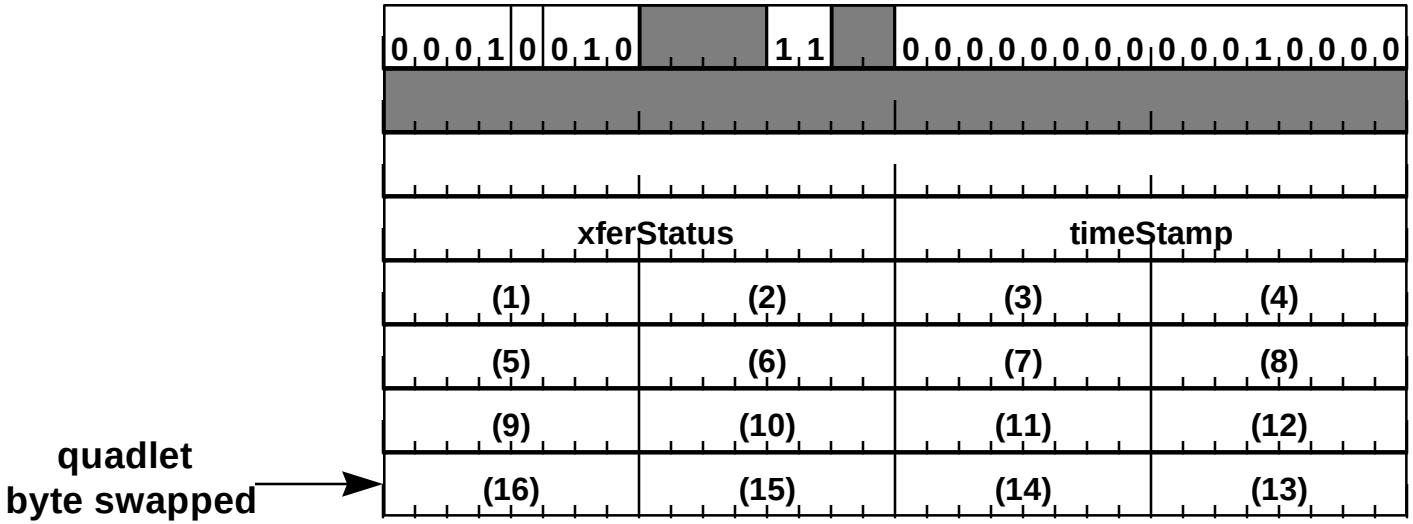
Sending 'Embedded' Data

- **Embedded data is controlled by HCControl.*noByteSwapData***



OUTPUT_MORE_Immediate

HCControl.*noByteSwapData* = 0

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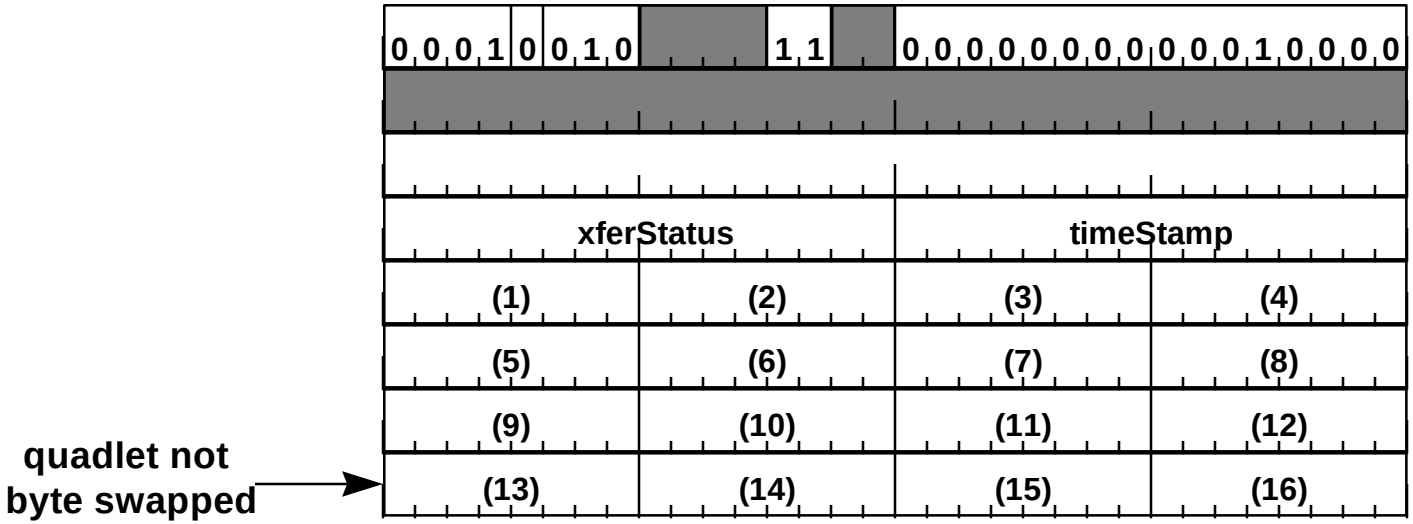
Sending ‘Embedded’ Data (cont.)



OUTPUT_MORE_Immediate (read response quadlet data)

HCControl.*noByteSwapData*= 1

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Receiving From 1394

- Headers bytes come in in big endian order and are saved in quadlets, left to right (same as sent)
- Data bytes come in big endian order and are saved in quadlets in the order determined by HCControl.*noByteSwapData*
- Bits in bytes come in big endian order (leftmost bit within byte first)

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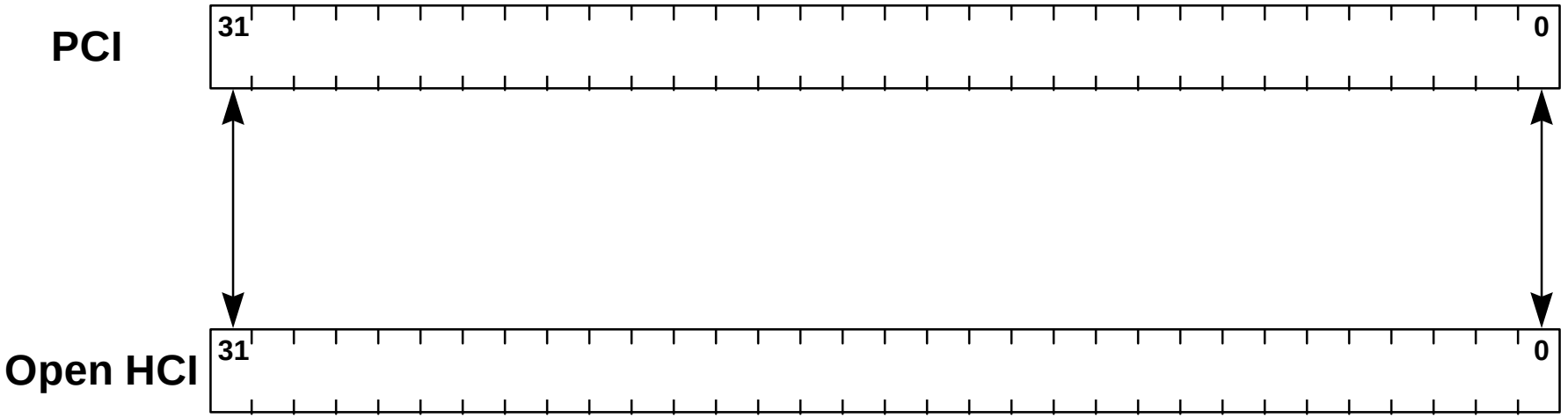
Global Byte Swapping

- **PCI_HCI_Control.*PCI_Global_Swap* controls byte swap going to/from HCI**
- **When set all data quadlets are byte swapped as they enter/leave host controller**
- **Does not affect addresses**
- **This function only required on add-in implementations**

Global Byte Swapping (cont.)

PCI_HCI_Control.*PCI_Global_Swap* = 0



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Global Byte Swapping (cont.)

PCI_HCI_Control.*PCI_Global_Swap* = 1