Addresses of EtherCAT Chassis

Daniel Sigg, January 22, 2017

Each standard chassis contains three DIN rails that can be equipped with EtherCAT terminals and couplers. Typically, there will be one coupler for each DIN rail. The first coupler (left rail) usually has an ID number associated with it: EK1110 for CAT5, EK1501 for multi-mode fiber and EK1501-0010 for single-mode fiber. The second and third coupler will be EK1100s without ID switch. The ID is set with 3 hexadecimal rotary switches enabling 4096 addresses. We are using the 2 most significant bits to select the detector. Furthermore, we are using the next 2 bits to select the building and network.

|  |  |  |
| --- | --- | --- |
| **Address (Bit 11 is MSB)** | **Offset** | **Usage** |
| **Bit 11** | **Bit 10** | **Bit 9** | **Bit 8** | **Hex** | **Decimal** |  |
| 0 | 0 | 0 | X | 0x000 | 0 | LHO test systems |
| 0 | 0 | 1 | X | 0x200 | 512 | LLO test systems |
| 0 | 1 | 0 | 0 | 0x400 | 1024 | H1 interferometer, corner |
| 0 | 1 | 1 | 0 | 0x600 | 1536 | H1 interferometer, EX |
| 0 | 1 | 1 | 1 | 0x700 | 1792 | H1 interferometer, EY |
| 1 | 0 | 0 | 0 | 0x800 | 2048 | H2 interferometer, corner |
| 1 | 0 | 1 | 0 | 0xA00 | 2560 | H2 interferometer, EX |
| 1 | 0 | 1 | 1 | 0XB00 | 2816 | H2 interferometer, EY |
| 1 | 1 | 0 | 0 | 0xC00 | 3072 | L1 interferometer, corner |
| 1 | 1 | 1 | 0 | 0xE00 | 3584 | L1 interferometer, EX |
| 1 | 1 | 1 | 1 | 0xF00 | 3840 | L1 interferometer, EY |

For test systems at LHO and LLO bit 8 indicates whether a system is part of a permanent or temporary setup. Addresses with bit 8 set are assigned permanently to setups, whereas the lower addresses can be used on an as needed basis.

The 4km remote access chassis in the corner station implements a single-mode fiber link to the end stations. The 4km remote access chassis in the end stations implements both the corner and the end station network as well as a link between them. These chassis use an address in the corner station range for the remote extensions.

A list of addresses is presented below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Address bits 7..0** | **Chassis** | **Location** | **Type** | **Rail/Slot** | **Full address** |
| **decimal** | **hex** |
| 0x00 | 4km Remote Access (Corner) | H1 corner  | CAT5 | L0 | 1024 | 0x400 |
| H2 corner | 2048 | 0x800 |
| L1 corner | 3072 | 0xC00 |
| 0x00 | 4km Remote Access (End) | H1 EX | CAT5 | L0 | 1536 | 0x600 |
| H2 EX | 2560 | 0xA00 |
| L1 EX | 3584 | 0xE00 |
| 0x01 | H1 EX | SM | R0 | 1025 | 0x401 |
| H2 EX | 2049 | 0x801 |
| L1 EX | 3073 | 0xC01 |
| 0x00 | H1 EY | CAT5 | L0 | 1792 | 0x700 |
| H2 EY | 2816 | 0xB00 |
| L1 EY | 3840 | 0xF00 |
| 0x02 | H1 EY | SM | R0 | 1026 | 0x402 |
| H2 EY | 2050 | 0x802 |
| L1 EY | 3074 | 0xC02 |
| 0x03 | ISC Common Mode | H1 corner  | MM | L0 | 1027 | 0x403 |
| H2 corner | 2051 | 0x803 |
| L1 corner | 3075 | 0xC03 |
| 0x03 | H1 EX | MM | L0 | 1539 | 0x603 |
| H2 EX | 2563 | 0xA03 |
| L1 EX | 3587 | 0xE03 |
| 0x03 | H1 EY | MM | L0 | 1795 | 0x703 |
| H2 EY | 2819 | 0xB03 |
| L1 EY | 3843 | 0xF03 |
| 0x04 | Corner 2 | H1 corner  | CAT5 | L0 | 1028 | 0x404 |
| H2 corner | 2052 | 0x804 |
| L1 corner | 3076 | 0xC04 |
| 0x05 | Corner 3 | H1 corner  | CAT5 | L0 | 1029 | 0x405 |
| H2 corner | 2053 | 0x805 |
| L1 corner | 3077 | 0xC05 |
| 0x06 | Corner 4 | H1 corner  | CAT5 | L0 | 1030 | 0x406 |
| H2 corner | 2054 | 0x806 |
| L1 corner | 3078 | 0xC06 |
| 0x07 | Corner 5 | H1 corner  | CAT5 | L0 | 1031 | 0x407 |
| H2 corner | 2055 | 0x807 |
| L1 corner | 3079 | 0xC07 |
| 0x08 | PSL/IO/TCS | H1 corner  | CAT5 | L0 | 1032 | 0x408 |
| H2 corner | 2056 | 0x808 |
| L1 corner | 3080 | 0xC08 |
| 0x09 | H1 corner  | CAT5 | R0 | 1033 | 0x409 |
| H2 corner | 2057 | 0x809 |
| L1 corner | 3081 | 0xC09 |

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| --- | --- | --- | --- | --- | --- |
| **Address bits 7..0** | **Chassis** | **Location** | **Type** | **Rail/Slot** | **Full address** |
| **decimal** | **hex** |
| 0x0A | Corner 6 | H1 corner  | CAT5 | L0 | 1034 | 0x40A |
| H2 corner | 2058 | 0x80A |
| L1 corner | 3082 | 0xC0A |
| 0x0B | TCS corner | H1 corner  | CAT5 | L0 | 1035 | 0x40B |
| H2 corner | 2059 | 0x80B |
| L1 corner | 3083 | 0xC0B |
| 0x0C | Squeezer 1 | H1 corner  | CAT5 | L0 | 1036 | 0x40C |
| H2 corner | 2060 | 0x80C |
| L1 corner | 3084 | 0xC0C |
| 0x0D | Squeezer 2 | H1 corner  | CAT5 | L0 | 1037 | 0x40D |
| H2 corner | 2061 | 0x80D |
| L1 corner | 3085 | 0xC0D |
| 0x0E | Squeezer 3 | H1 corner  | CAT5 | L0 | 1038 | 0x40E |
| H2 corner | 2062 | 0x80E |
| L1 corner | 3086 | 0xC0E |
| 0x04 | End 2 | H1 EX | CAT5 | L0 | 1540 | 0x604 |
| H2 EX | 2564 | 0xA04 |
| L1 EX | 3588 | 0xE04 |
| H1 EY | CAT5 | L0 | 1796 | 0x704 |
| H2 EY | 2820 | 0xB04 |
| L1 EY | 3844 | 0xF04 |
| 0x05 | End 3 | H1 EX | CAT5 | L0 | 1541 | 0x605 |
| H2 EX | 2565 | 0xA05 |
| L1 EX | 3589 | 0xE05 |
| H1 EY | CAT5 | L0 | 1797 | 0x705 |
| H2 EY | 2821 | 0xB05 |
| L1 EY | 3845 | 0xF05 |
| 0x01 | EtherCAT Communications Tester | LHO | CAT5 | 11 | 257 | 0x101 |
| LLO | 769 | 0x301 |
| 0x02 | LHO | MM | 16 | 258 | 0x102 |
| LLO | 770 | 0x302 |
| 0x03 | LHO | SM | 21 | 259 | 0x103 |
| LLO | 771 | 0x303 |