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Communication With a IIDC Camera

In order to begin communication with an IIDC camera, it is necessary to first determine which portion of the address space the IIDC camera is located. To allow flexibility in device implementation the IIDC address space is not the same between devices but can be selected by the camera manufacturer.

The IIDC specification defines the base address of the IIDC address space as **FFFF Fxxx xxxh** where the **xxx xxxh** is determined from the camera's *Configuration ROM*.

Navigating the Configuration ROM

The IIDC specification defines the format of the *Configuration ROM* for IIDC cameras. The offsets listed in the *Root Directory* table are all relative to the base address **FFFF F000 0000h**.

To determine the location of the *Unit Directory* the **unit_directory_offset** field must be read from offset **0424h** (or address **FFFF F000 0424h**). This field consists of an identifying key and a relative *quadlet offset*. The identifying key is an 8 bit value that for the unit directory offset is **D1h**. So if the value in the **unit_directory_offset** field is **D100 0004h** then the offset for the *unit directory* is $0424h + 4 \times 04h = 0434h$ (or address **FFFF F000 0434h**).

To determine the location of the Unit Dependent Directory the **unit_dependent_directory_offset** field must be read from offset **000Ch** of the *Unit Directory* (or address **FFFF F000 0440h** using the above example unit directory offset). The identifying key for the unit dependent directory offset is **D4h**. So if the value in the **unit_dependent_directory_offset** field is **D400 0001h** then the offset for the unit dependent directory is $0440h + 04h = 0444h$ (or address **FFFF F000 0444h**).

The Unit Dependent Directory contains, among other things, the *IIDC Base Address*, which can be read from the **command_regs_base** field of the Unit Dependent Directory. The identifying key for the **command_regs_base** field is **40h**. So if the value of that field is **4034 0000h** then the offset of the IIDC address space is **00D0 0000h** or the *IIDC Base Address* is **FFFF F0D0 0000h**.

Note NOTE: This sample *IIDC Base Address* will be used in all further examples in this section.

IIDC Command Registers

All CSRs are defined in section 1 of the IIDC specification. The offsets for all of these registers, unless otherwise specified, are relative to the *IIDC Base Address*.

The IIDC CSRs consist of Inquiry Registers and Control Registers. The IIDC specification is designed to support many different types of cameras with many different features and hence the need for Inquiry registers. The Inquiry registers are used by controlling software to determine which of the features are supported by a particular camera. With the Inquiry registers, you are asking the camera "What can you do?". Once the host software has determined which features are supported, the Control registers are used to modify settings of those supported features.

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