

Advanced Feature – User profiles

Marlin 06 Series

(Firmware 3.03 required)

Document history

v1	26.05.2005		Initial version
	09.02.2006		Public release

Register overview

Offset	Register name	Remarks
0x1000040	ADV_INQ_1	
0x1000550	USER_PROFILE	

Advanced Feature Inquiry

Offset	Name	Field	Bit	Description
0x1000040	ADV_INQ_1	UserProfiles	[0..20] [21] [22..31]	See 'AdvancedFeatures.pdf' See 'AdvancedFeatures.pdf'
0x1000044	ADV_INQ_2		[0..31]	See 'AdvancedFeatures.pdf'
0x1000048	ADV_INQ_3		[0..31]	See 'AdvancedFeatures.pdf'
0x100004C	ADV_INQ_4		[0..31]	See 'AdvancedFeatures.pdf'

Each named bit indicates if a feature is present or not. If a feature is marked as not present the associated register space might not be available and read/write errors may occur.

User Profiles

Offset	Name	Field	Bit	Description
0x1000550	USER_PROFILE	Presence_Inq	[0]	Indicates presence of this feature (read only)
			[1..7]	Reserved
		SaveProfile	[8]	Save settings to profile
		RestoreProfile	[9]	Load settings from profile
		SetDefaultID	[10]	Set Profile ID as default
			[11..19]	Reserved
		ErrorCode	[20..23]	Error code
			[24..27]	Reserved
		ProfileID	[28..31]	ProfileID (memory channel)

Within the IIDC specification **user profiles** are called **memory channels** – others may call them **user sets**. In practice these are different terms for the same thing – storing camera settings into a non-volatile memory inside the camera.

In general this advanced register is a wrapper around the standard memory channel registers with some extensions. So to query the number of available user profiles you have to check the `Memory_Channel` field of the `BASIC_FUNC_INQ` register at offset 0x400 (see IIDC-1.3x specification for details).

The `ProfileID` has the same meaning like the memory channel number and specifies the profile number to store settings to or to restore settings from. In any case profile #0 is the hard-coded factory profile and can't be overwritten.

After an initialization command, startup or reset of the camera, the `ProfileID` also indicates which profile was loaded on startup, reset or initialization.

To store the current camera settings into a profile:

- Write the desired `ProfileID` with the `SaveProfile` flag set
- Read back the register and check the `ErrorCode` field

To restore the settings from a previous stored profile:

- Write the desired `ProfileID` with the `RestoreProfile` flag set
- Read back the register and check the `ErrorCode` field

To set the default profile to be loaded on startup, reset or initialization

- Write the desired `ProfileID` with the `SetDefaultID` flag set
- Read back the register and check the `ErrorCode` field

ErrorCodes:

- 0 No error
- 1 Profile data corrupted
- 2 Camera not idle during restore operation
- 3 Feature not available (feature not present)
- 4 Profile doesn't exist
- 5 ProfileID out of range
- 6 Restoring the default profile failed
- 7 Loading LUT data failed
- 8 Storing LUT data failed

The `ErrorCode` field is set to zero on the next write access. You may also reset the `ErrorCode` by writing to the **USER_PROFILE** register with the `SaveProfile`, `RestoreProfile` and `SetDefaultID` flag not set.

Settings stored inside a profile:

Standard registers:

`Cur_V_Frm_Rate`, `Cur_V_Mode`, `Cur_V_Format`, `ISO_Channel`, `ISO_Speed`, `BRIGHTNESS`, `AUTO_EXPOSURE`, `SHARPNESS`, `WHITE_BALANCE`, `HUE`, `SATURATION`, `GAMMA`, `SHUTTER`, `GAIN`, `TRIGGER_MODE`, `TRIGGER_DELAY`, `ABS_GAIN`, `ABS_TRIGGER_DELAY`

Standard registers - any format 7:

`IMAGE_POSITION`, `IMAGE_SIZE`, `COLOR_CODING_ID`, `BYTES_PER_PACKET`

Advanced registers:

`TIMEBASE`, `EXTD_SHUTTER`, `IO_INP_CTRL`, `IO_OUTP_CTRL`, `IO_INTENA_DELAY`, `AUTOSHUTTER_LO`, `AUTOSHUTTER_HI`, `AUTOGAIN_CTRL`, `AUTOFNC_AOI`, `COLOR_CORR`, `TRIGGER_DELAY`, `MIRROR_IMAGE`, `HIGH_SNR`, `TIMESTAMP`, `LUT_CTRL`, `LUT_DATA`

Hints:

- A profile save operation automatically disables capturing of images
- A profile save or restore operation is like an atomic operation – the write response (of the asynchronous write cycle) will be send after completion of the operation
- Restoring a profile will not overwrite other settings than listed above.
- If a restore operation fails or the specified profile doesn't exist, all registers will be overwritten with the hard-coded factory defaults (profile #0)
- Data written to this register won't be reflected in the standard memory channel registers.