

# ***Firmware Release Notes***

***Stingray F-033B/C (fiber)***

***Stingray F-046B/C (fiber)***

***Stingray F-080B/C (fiber)***

***Stingray F-125B/C (fiber)***

***Stingray F-145B/C (fiber)***

***Stingray F-146B/C (fiber)***

***Stingray F-201B/C (fiber)***

***Stingray F-504B/C (fiber)***

***Document number: V2.2.6***

[Note: This document number does not correspond with any firmware number.]

***Date:***

***February 7<sup>th</sup>, 2012***

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## Summary

This release note details the new features and bug fixes of the firmware of the **AVT Stingray series** of cameras in relation to the earlier firmware versions listed above. This is intended to provide an indication of new features available with this release and the progress since the last major release.

The firmware of a Stingray camera consists of three integral parts, which are merged together into one .xml file.

# Stingray F-033/046/080/125/145/146/201/504 B/C (fiber)

## Microcontroller firmware

### Release history

Release	Stingray F-033B/C (fiber)	Stingray F-046B/C (fiber)	Stingray F-080B/C (fiber)	Stingray F-125B/C (fiber)	Stingray F-145B/C (fiber)	Stingray F-146B/C (fiber)	Stingray F-201B/C (fiber)	Stingray F-504B/C (fiber)
Current	0.2.1.5 2011-11-21	0.2.1.5 2011-11-21	0.2.1.5 2011-11-21	0.2.1.5 2011-11-21	0.2.1.5 2011-11-21	0.2.1.5 2011-11-21	0.2.1.5 2011-11-21	FIFO 64MB only: 0.2.1.5 2011-11-21
Pre-decessor	0.1.9.40 2010-07-07	0.1.9.40 2010-07-07	0.1.9.40 2010-07-07	0.2.1.4 2011-11-04	0.2.1.3 2011-10-07	0.1.9.40 2010-07-07	0.1.9.40 2010-07-07	FIFO 64MB only: 0.2.1.3 2011-10-07
Initial	0.0.6.0 2008-05-14	0.0.6.0 2008-05-14	0.0.6.0 2008-05-14	0.1.4.0 2009-02-16	0.0.6.0 2008-05-14	0.0.6.0 2008-05-14	0.0.6.0 2008-05-14	FIFO 32MB: 0.1.4.0 2009-02-13  FIFO 64MB: 0.1.6.0 2009-06-16

### Firmware 0.2.1.5 (all Stingray cameras)

1.	<p>Bug fixes:</p> <ul style="list-style-type: none"><li>● #677 - Corrected: Stingray defect pixel correction didn't detect defects</li><li>● #835 - Corrected: No acknowledge when opening camera, after closing it with Auto Gain or Auto Shutter enabled</li><li>● #1036 – Corrected: Combination of One-Push /Auto Shutter and White balance may not work parallel and inhibit each other</li></ul>
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### **Firmware 0.2.1.4 (Stingray F-125B/C only)**

1.	<ul style="list-style-type: none"><li>● #855 - Improved: Stingray F-125B showed image artifacts (shadow images) under certain camera settings</li></ul>
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### **Firmware 0.2.1.3 (Stingray F-504B/C only)**

1.	Bug fixes: <ul style="list-style-type: none"><li>● #1019: Improvement of yield for production of Stingray F-504B/C</li></ul>
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### **Firmware 0.1.9.40 (all Stingray cameras)**

1.	Bug fixes: <ul style="list-style-type: none"><li>● #798: Corrected: wrong gain settings after initialize</li></ul>
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### **Firmware 0.1.9.20 (all Stingray cameras)**

1.	Bug fixes: <ul style="list-style-type: none"><li>● #562: Corrected: wrong exposure offset at 0xF1000208 TIMEBASE register</li></ul>
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### **Firmware 0.1.9.1 (all Stingray cameras)**

1.	Bug fixes: <ul style="list-style-type: none"><li>● #741: Missing Trigger_Source0_Inq in TRIGGER_INQ set - fixed</li><li>● #738: Unplug Camera or bus reset leads to frozen camera while IntEna is active - fixed</li><li>● #733: Presence bit in TriggerCtrl 0x830 was writeable - fixed</li><li>● #693: SW feature flags: wrong number of bits defined in structure - fixed</li></ul>
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### **Firmware 0.1.8.1 (Stingray F-504C only)**

1.	New features: <ul style="list-style-type: none"><li>● Only Stingray F-504C: monochrome 2x/4x/8x binning modes implemented</li></ul>
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## Firmware 0.1.7.0 (all Stingray cameras)

1.	<p>Bug fixes:</p> <ul style="list-style-type: none"><li>● Corrected: With Stingray microcontroller firmware 1.6, cameras were assigned as IIDC 1.30 standard, if specific software flag was checked by 3rd party software.</li><li>● #668: Maximum length for camera model was extended (from 18 to 38 characters).</li><li>● Bootloader: some minor optimizations</li></ul>
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## Firmware 0.1.6.0 (all Stingray cameras)

1.	<p>New features:</p> <ul style="list-style-type: none"><li>● Only Stingray F-504B/C: new hardware with 64 MB FIFO (S/N &gt; 09/17-285827233)</li><li>● #434: SW trigger according to IIDC (incl. trigger-ready signals)</li><li>● #435: Adjustable input port debouncing</li><li>● #436: Defect pixel correction</li><li>● #456: Camera stores maximum occurred temperature</li><li>● #543: Disable LEDs function</li><li>● #553: Latency optimization</li><li>● #638: Low-noise binning</li></ul>
3.	<p>Bug fixes:</p> <ul style="list-style-type: none"><li>● #429: Payload --&gt; 4</li><li>● #433: SIS error</li><li>● #455: LED shows GOF signal detection</li><li>● #482: Stingray F-033C vertical stripe</li><li>● #509: Storing shading image --&gt; document change</li><li>● #511: RS232 writes random data</li><li>● #516: Direct I/Os port switching (idle und busy)</li><li>● #532: Mono at 2/8 sub-sampling</li><li>● #536: Output pin state</li><li>● #541: Feature MaxIsoSize400 is available, but non-functional (correction)</li><li>● #548: AFE initialization</li><li>● #575: Stingray F-146 frame rate formula</li><li>● #599: Stingray F-201 dropping frame rate to 21.4 fps when shifting AOI window position</li><li>● #604: Stingray F-504 und Stingray F-125: Low-pass filter in input block improvement</li><li>● #620: Stingray F-201 dropping frame rate to 21.4 fps when shifting AOI window position</li></ul>

## Firmware 0.1.4.0 (only Stingray F-125 and F-504)

1.	New cameras: Stingray F-125B/C and Stingray F-504B/C
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## Firmware 0.1.0.2 (all Stingrays)

1.	Bug fixes: <ul style="list-style-type: none"><li>● Corrected: Camera may show digital noise after power up. Confirmed in Stingray F-145 models. Possible in all further Stingray models.</li></ul>
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## Firmware 0.1.0.1 (all Stingrays)

1.	New features: <ul style="list-style-type: none"><li>● Angled head models</li><li>● Fiber models</li><li>● Binning (4 x / 8 x)</li><li>● Sub-sampling (2 x / 8 x)</li><li>● Sharpness</li><li>● Temperature register support</li><li>● PWM support</li><li>● One-push gain</li><li>● One-push shutter</li><li>● Mirror image: horizontal</li><li>● Shading correction</li><li>● Sequence mode</li></ul>
2.	Modified: <ul style="list-style-type: none"><li>● Hue range (-15° ... +15°)</li></ul>
3.	Bug fixes: <ul style="list-style-type: none"><li>● #448 I/O output pin state</li><li>● #432: Quick and multiple parameter changes may stop camera (= #413)</li><li>● #428: Power LED does not work properly (XML)</li><li>● #427: Power LED does not work properly</li><li>● #413: Quick and multiple parameter changes may stop camera</li><li>● #412: Reread of standard parameter</li></ul>

# Stingray F-033/046/080/145/146/201/504 (fiber)

## FPGA firmware

### Release history

Release	Stingray F-033B/C (fiber)	Stingray F-046B/C (fiber)	Stingray F-080B/C (fiber)	Stingray F-125B/C (fiber)	Stingray F-145B/C (fiber)	Stingray F-146B/C (fiber)	Stingray F-201B/C (fiber)	Stingray F-504B/C (fiber)
Current	00.03.01.00 2011-11-21	00.03.01.00 2011-11-21	00.03.01.00 2011-11-21	00.03.01.00 2011-11-21	00.03.01.00 2011-11-21	00.03.01.00 2011-11-21	00.03.01.00 2011-11-21	FIFO 64MB only: 00.03.01.00 2011-11-21
Pre-decessor	00.02.01.07 2010-05-27	00.02.01.07 2010-05-27	00.02.01.07 2010-05-27	00.03.00.03 2011-10-21	00.03.00.03 2011-10-24	00.02.01.07 2010-05-27	00.02.01.07 2010-05-27	FIFO 64MB only: 00.03.00.03 2011-10-24
Initial	00.00.01.00 2008-05-14	00.00.01.00 2008-05-14	00.00.01.00 2008-05-14	00.02.00.00 2009-02-16	00.00.01.00 2008-05-14	00.00.01.00 2008-05-14	00.00.01.00 2008-05-14	FIFO 32MB: 00.02.00.00 2009-02-13  FIFO 64MB: 00.02.01.00 2009-06-16

### FPGA firmware 00.03.01.00 (all Stingray cameras)

1.	<p>Bug fix:</p> <ul style="list-style-type: none"><li>● #768 - Corrected: Sequence mode didn't work after after multishot mode was used</li><li>● #824 - Corrected: Quick Format Change Mode didn't work reliable</li><li>● #875: Corrected: Stingray defect pixel correction didn't detect defects (all)</li><li>● #846 - Corrected: Stingray disappears from bus when opening, after closing it with Auto Shutter enabled</li><li>● #1032 - Corrected: Using YUV422 and RGB for color debayering showed one invalid column</li></ul>
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Allied Vision Technologies GmbH  
Taschenweg 2a | D-07646 Stadtroda | Germany  
Phone: +49 (0)36428 6770 | Fax: +49 (0)36428 677-28  
www.alliedvisiontec.com | [info@alliedvisiontec.com](mailto:info@alliedvisiontec.com)



## **FPGA firmware 00.03.00.01 (Stingray F-504B/C only)**

1.	Bug fix: <ul style="list-style-type: none"><li>● #875: Corrected: Stingray defect pixel correction didn't detect defects</li><li>● #876: Corrected: Stingray defect pixel correction had no influence in binning modes</li></ul>
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## **FPGA firmware 00.02.01.07 (all Stingray cameras)**

1.	Bug fix: <ul style="list-style-type: none"><li>● #771: Corrected: In dedicated combinations, the sequence mode did not work properly</li><li>● #774: Corrected: Randomly broken images (free-run and trigger mode)</li></ul>
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## **FPGA firmware 00.02.01.06 (Stingray F-145 only)**

1.	Bug fix: <ul style="list-style-type: none"><li>● #771: Corrected: In dedicated combinations, the sequence mode did not work properly</li></ul>
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## **FPGA firmware 00.02.01.05 (all Stingray cameras)**

1.	<ul style="list-style-type: none"><li>● #721 &amp; 738: Hang-up on bus reset removed</li></ul>
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## **FPGA firmware 00.02.01.05 (Stingray F-033x only)**

1.	<ul style="list-style-type: none"><li>● #622: First two pixels with false image information</li></ul>
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## **FPGA firmware 00.02.01.01 (Stingray F-504C only)**

1.	New features: <ul style="list-style-type: none"><li>● Only Stingray F-504C: monochrome 2x/4x/8x binning modes implemented</li></ul>
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## **FPGA firmware 00.02.01.00 (all Stingray cameras)**

1.	New features: <ul style="list-style-type: none"><li>● Only Stingray F-504B/C : new hardware with 64 MB FIFO (S/N &gt; 09/17-285827233)</li><li>● #516: IOs direct switchable in non-sequence mode</li></ul>
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	<ul style="list-style-type: none"> <li>● #435: Adjustable input port debouncing</li> <li>● #436: Defect pixel correction</li> <li>● #434: Software trigger</li> <li>● #638: Low-noise binning</li> <li>● WaitingForTrigger signal is generated, read back via output pin and register</li> </ul>
2.	Bug fix: <ul style="list-style-type: none"> <li>● Left-hand side vertical stripe corrected (Stingray F-033)</li> </ul>

## **FPGA firmware 00.02.00.00 (only Stingray F-125 and F-504)**

1.	New cameras: Stingray F-125B/C and Stingray F-504B/C
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## **FPGA firmware 00.01.00.03 (only Stingray F-046 and F-201)**

1.	Bug fixes: <ul style="list-style-type: none"> <li>● Corrected: No asynchronous output pin state change (#516)</li> </ul>
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
## **FPGA firmware 00.01.00.01**

1.	New features: <ul style="list-style-type: none"> <li>● Shading correction</li> </ul>
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# Appendix

How to find out, which **firmware versions** your camera has:

## First way

1. Start **AVT SmartView** (ask your local dealer for a copy of it). Double-click on the desired camera (e.g. Stingray F-033B).
2. In SmartView window click on **Edit settings** button .
3. Click on **Adv1** tab.

Here you find the **Version Information (Microcontroller and FPGA)**.

## Second way

Read out the version information on register level as follows:

Register	Name	Field	Bit	Description
0xF1000010	VERSION_INFO1	µC type ID	[0..15]	Always 0
		µC version	[16..31]	Bcd-coded version number
0xF1000014	VERSION_INFO01_EX	µC version	[0..31]	Bcd-coded version number
0xF1000018	VERSION_INFO3	Camera type ID	[0..15]	See table below
		FPGA version	[16..31]	Bcd-coded version number
0xF100001C	VERSION_INFO3_EX	FPGA version	[0..31]	Bcd-coded version number
0xF1000020		---	[0..31]	Reserved
0xF1000024		---	[0..31]	Reserved
0xF1000028		---	[0..31]	Reserved
0xF100002C		---	[0..31]	Reserved
0xF1000030		OrderIDHigh	[0..31]	8 Byte ASCII Order ID
0xF1000034		OrderIDLow	[0..31]	

Allied Vision Technologies GmbH  
Taschenweg 2a | D-07646 Stadtroda | Germany  
Phone: +49 (0)36428 6770 | Fax: +49 (0)36428 677-28  
[www.alliedvisiontec.com](http://www.alliedvisiontec.com) | [info@alliedvisiontec.com](mailto:info@alliedvisiontec.com)



The µC version and FPGA firmware version numbers are bcd-coded, which means that e.g. firmware version 0.85 is read as 0x0085 and version 1.10 is read as 0x0110.

The FPGA type ID (= camera type ID) identifies the camera type.

You can find the ID list in the **Technical Manual** in the following chapter:

**Extended version information register**