Release Note

Project Name	OnSemiCamModule_96B	Project Code	OT_U21_431
Release Name/ Number	1.1	Release Date	02/18/2022
EI Point of Contacts	Deepak Rathore	Customer Point of Contacts	Soma Polonkai

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Reviewed By	Deepak Rathore
Approved By	Deepak Rathore

1. Release Description

The Software release version (v1.1) is based on dhcom_stm32mp1-bsp-platform release from dh-electronics. It is to be used with Avenger96 Development board. This release is based on dhcom_stm32mp1-bsp-platform release from dh-electronics with adaptations and customizations from eInfochips to interface AP1302 ISP with Avenger96 Development platform.

2. Release Details

This release consists of the following:

- Pre-built images
- Documentation
- Build and source code setup script
- Readme
- Yocto recipes and patches
- Test report

This release includes the following references and additional information:

- **ei_OnSemiCamModule_96B_AV96_ReleaseNote.pdf** – Provides release information
- **ei_Camera_User_Guide_STM32MP1_Avenger96_L5_10_Rel_1_1.pdf** – Provides the information on interfacing camera to Avenger96 development board and steps to capture images and stream
- **ei_OnSemiCamModule_96B_AV96_TestCases.xlsx** – Provides the validated test cases and its result to verify the camera module

a. Software Package Deliverables

Download or clone release Avenger96, it contains following:

```
Avenger96/Kernel_5_10_74
├── Avenger96_L5_10_74_Rel_1_1_patches
├── readme.md
├── Software_Docs
│   ├── ei_Camera_User_Guide_STM32MP1_Avenger96_L5_10_Rel_1_1.pdf
│   ├── ei_OnSemiCamModule_96B_AV96_ReleaseNote.pdf
│   └── ei_OnSemiCamModule_96B_AV96_TestCases.xlsx
├── Yocto_build_manual_steps_avenger96.txt
└── yocto_build_setup_Avenger96.sh
```

b. For Product Delivery

i) Shipping Address:

N.A.

ii) If customer's shipment account to be used, provide details

N.A

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3. Release Contents

a. Release Feature Description

Sr. No.	Feature Description	Feature or Change implemented/ Bug Resolved	Ref ID
1.	Live stream from AR0430 camera image sensor using AP1302 ISP in HDMI Display supporting following resolution: • 4MP (2316x1746) @10FPS	Feature	
2.	Live stream from ARX3A0 camera image sensor using AP1302 ISP in HDMI Display supporting following resolution: • 0.3MP (560x560) @120FPS	Feature	
3.	RBGP data format type is supported	Feature	
4.	ISP Control feature – Identify resolution, FPS and data format type of AP1302 ISP	Feature	
5.	ISP Control feature - White balance on AP1302 ISP is supported	Feature	
6.	ISP Control feature - Exposure on AP1302 ISP is supported	Feature	
7.	ISP Control feature - Gain on AP1302 ISP is supported	Feature	
8.	ISP Control feature - Contrast on AP1302 ISP is supported	Feature	
9.	ISP Control feature - Brightness on AP1302 ISP is supported	Feature	
10.	ISP Control feature - Saturation on AP1302 ISP is supported	Feature	
11.	ISP Control feature - Gamma on AP1302 ISP is supported	Feature	

b. Known Issues
No known issue in this release.

c. For Product Delivery
NA

d. Applicable Accessories
NA

e. List of Documents Delivered/ Affected

Sr. No.	Document Name	Current Version
1	ei_Camera_User_Guide_STM32MP1_Avenger96_L5_10_Rel_1_1.pdf	1.1
2	ei_OnSemiCamModule_96B_AV96_TestCases.xls	1.1

4. Software and Hardware Tool Used
- Avenger96 Development board
- SD Card
- 12V/2A Power adapter
- Ethernet cable
- HDMI Display
- USB Mouse
- USB Keyboard
- UART debug cable - UART Serial - 96Boards
- SRT-Vision96-AR0430 mezzanine (AP-vision-AR0430)
- SRT-Vision96-ARX3A0 mezzanine (AP-vision-ARX3A0)

5. Dependencies and Restrictions
- The theoretical throughput rate of MIPI CSI-2.1 interface of about 2.5 Gbyte/s is not possible due to the hardware limitations in the STM32MP1. Please refer to the section 3.3 STM32MP1 Series video throughput performance through DCMI of this document
- Using v4l2-ctl utility we are able get complete FPS as configured in the camera driver , but when streaming in the HDMI display the FPS count gets reduced , this is due to the gstreamer performance in DH Mainline based Avenger96 release
- Since RGBP data format type for jpegenc plugin is not supported in the currently used gstreamer package , capturing of the image in jpeg format is not supported.

6. Installation notes
Refer to the Section 2.3 and Section 2.4 of ei_Camera_User_Guide_STM32MP1_Avenger96_L5_10_Rel_1_1.pdf to flash firmware image to SD Card for Avenger96 board.

7. Test Environment
Refer to the ei_OnSemiCamModule_96B_AV96_TestCases.xls for all the Avenger96 camera interface Test cases.

8. Recommendations for System Handling
Avenger96 boards must be used in ESD safe environment.