Cloud Rest User Manual

Rev 0.3

Revision history

Data	Doc.Rev.		Changes
19-JULY-2016	Rev.0.1		Initial Release
25-JULY-2016	Rev.0.2		Add FCC statements
26-JULY-2016	Rev.0.3		• Correct project name to Cloud Rest • Modify some spelling mistake • Add WLAN operation description

1.Introduction

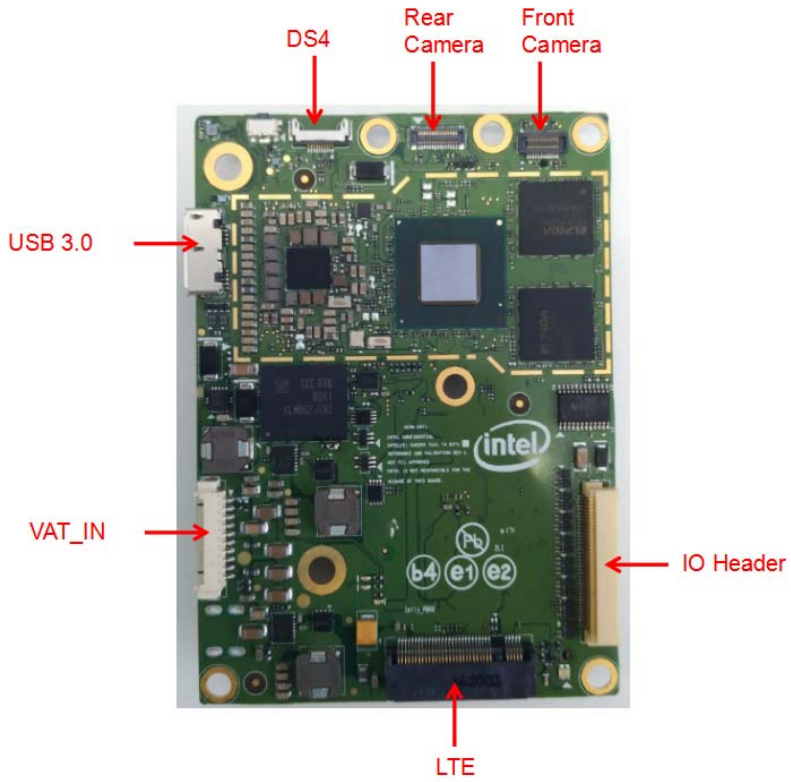
1.1 Purpose

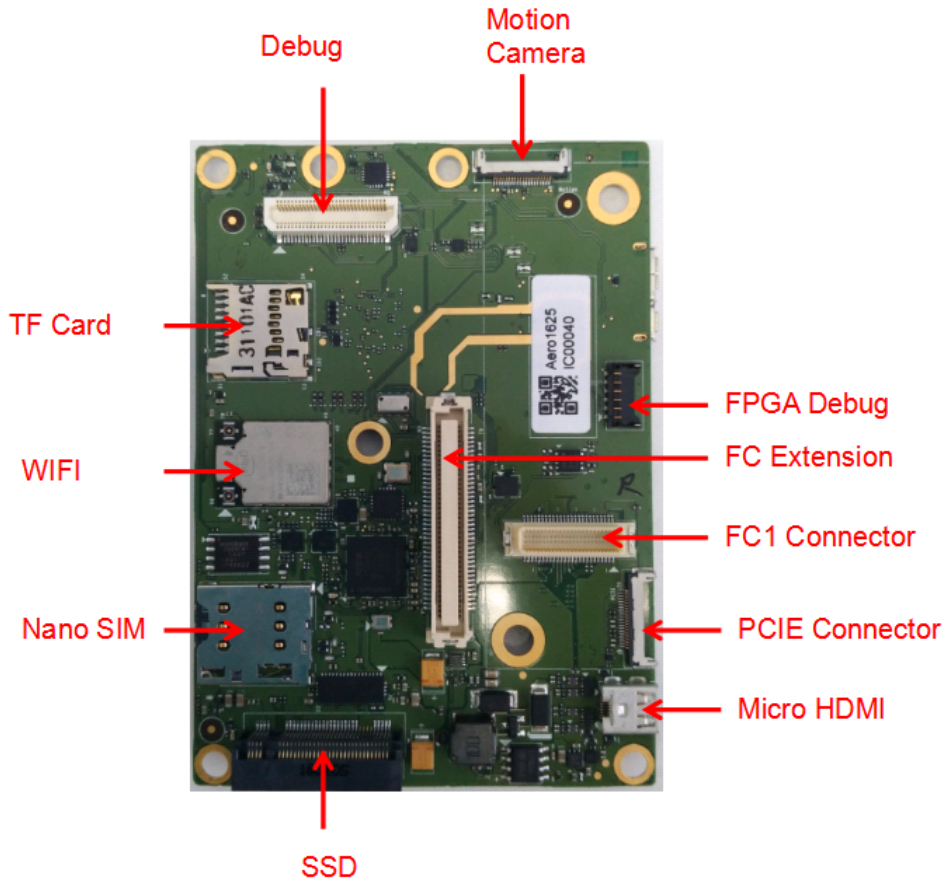
This document illustrate detail information how to use Cloud Rest and assemble peripherals.

1.2 Document Reference Table

Document	Document Number

1.3 Cloud Rest Introduction




Debug
Motion Camera
TF Card
WIFI
Nano SIM
SSD
FPGA Debug
FC Extension
FC1 Connector
PCIE Connector
Micro HDMI

1.4 Main Features

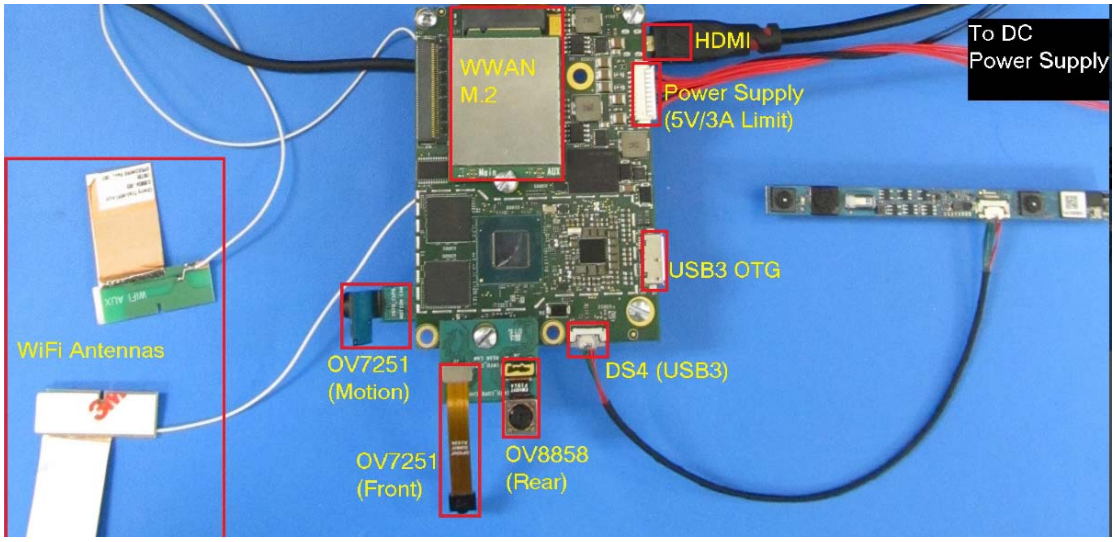
The table shows the specification and interface that are supported on the Cloud Rest module

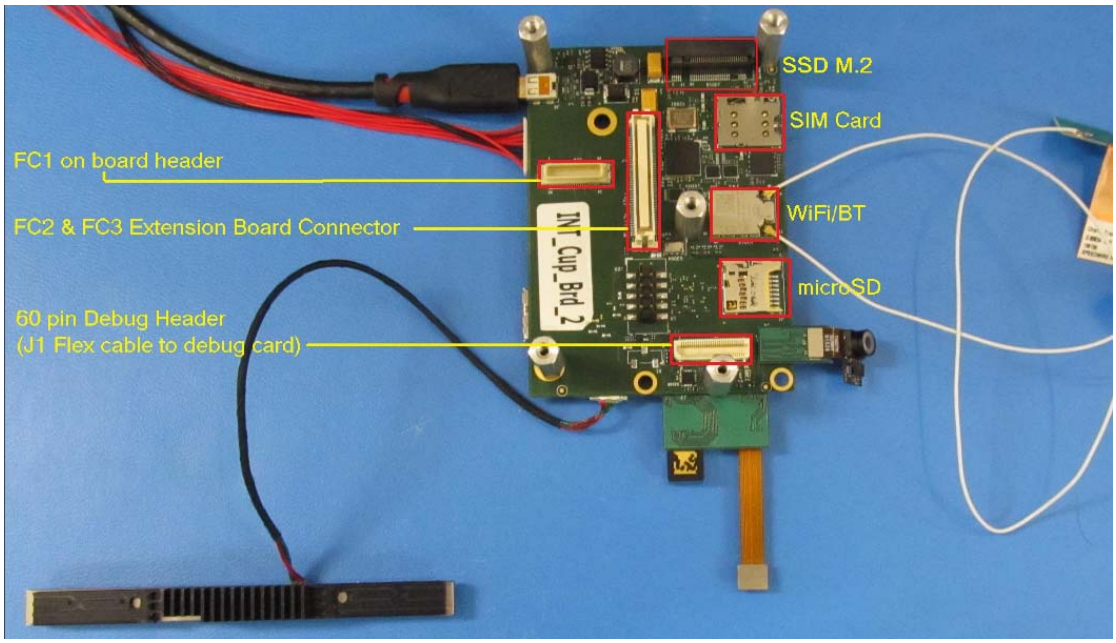
Type	Item	Description	Interface	Part Number
CPU	Package	Cherrytrail, BGA: 17x17mm, 0.4mm ball-pitch, Type-4		
	CPU	Z-8750 QC CPU, 2.24GHz Burst		
	GPU	Gen8 LP 12/16 EU up to 600MHz		
Power	PMIC	Intel Whiskey Cove		Whiskey Cove PMB6835A.E101
Memory	LPDDR3	LPDDR3 2x64bit 1600Mbps 2GB Option 4GB	LPDDR3	EDFA164A2MA-GD-F*2 =2GB
Storage	eMMC	eMMC 5.1 up to 32GB	SDIO	KLMBG2JENB-B041
	SSD	M.2 1x PCIe, 500MBps SSD support	PCIE	Intel supply the module P/N
	Micro SD card	up to 64GB	SDIO	Micro SD card connector
	Flash	SPI Flash 64Gbit	SPI	W25Q64FWZPIG
camera	Rear Camera	30-pin connector	CSI*4	OV8858
	Front Camera	24-pin connector	CSI*2	OV7251
	Camera	20-pin connector for 6DOF RealSense 3D Camera	CSI*2(switch)	OV7251 for motion module
Connectivity	WLAN	M.2 1216 802.11ac, 2x2 AC	PCIE WIFI USB or UART	Intel® Dual Band Wireless-AC 8260(Sonwfield Peak)
Flex IO	FPGA	Programmable IO per customer d	SPI/SDIO	10M08SAM153I7G
LED Indicator	Power	Red LED for PWR on/off		
	RGB	RGB LED	GPIO X 3	
Sensor	Barometer	Height measurement Operating range: 10 to 1200 mbar	I2C	MS5611-01BA03
	A+G	6-Axis Inertial Measurement Unit	SPI	BMI160
	Magnetic	3-axis Standalone geomagnetic sensor	I2C	BMM150
Display	Micro HDMI	HDMI 1.4b 1080p 24bpp	HDMI	Micro HDMI connector
IO	Debug Header	60-pin Connector Off Board(JTAG,UART,USB,SPI…)		
	CAN V2.0	2-pin connector	SPI	MCP2515T
	IO Header	100-pin Connector		
	USB 3.0	OTG Debug and software upgrade	USB3.0	Micro USB3.0 connector
	FC1	50-pin Connector Header from FPGA	IO	
	FC2&FC3	80-pin Connector Header from FPGA	IO	
	PCEI	20-pin Connector PCIE X2(Mux)	PCIE	
OS	Linux	Yocto/Ubuntu		
Power	Input voltage 12V			
PCB	88mm*63.5mm 8-layer			

2 Cloud Rest Function Validation

2.1Board connection and Operate

The below pictures depict the front and back side of the Cloud Rest device and the peripherals connected





2.1.1 Power on

Power on with 12V/2A DC adaptor with 10pin power cable. System will boot up automatic after plug in power cable on VAT_IN connector

2.1.2 EMMC Command

NA

2.1.3 SSD Command

NA

2.1.4 Micro SD Command

NA

2.1.5 Motion Camera Command

NA

2.1.6 Rear Camera Command

NA

2.1.7 Front Camera Command

NA

2.1.8 DS4 Camera Command

1) login: root
password: Cr1BsP2aDmIn3

2)command
export DISPLAY=:0
DSSimpleCaptureGL

2.1.9 WLAN Operation

Intel®Dual-Band Wireless-AC 8260 (code name Snowfield Peak or SfP) is M.2 connectivity module for Notebooks, Tablets and PCs. It supports 802.11abgn+ac MIMO 2x2 radio technology

When you have both update DRTU and drtu_core18_aero.tar.bz2, please go with:
[In board DUT]
1) copy drtu_core18_aero.tar.bz2 to your board.
2) de-compress it like " tar vzxf drtu_core18.tar.gz".
3) cd drtu_core18
4) ./install.sh
5) reboot
[Windows]
1) Install the DRTU setup.exe. (Just keep clicking next step till done installation)

Every time you want to run DRTU:
[Note] You need to attach a USB ethernet in the board.
And you need to make sure both board and Windows can ping each other IP address.
[Board DUT] Run rservice step:
1) cd /drtu_core18/
2) ./enter_mfg_mode.sh

[Windows] Run DRTU :
1) Use your Windows DTRU connect to board IP.

2.1.10 WWAN Command

NA

2.1.11 Barometer Command

NA

2.1.12 A+G Command

NA

2.1.13 Magnetic Command

NA

2.1.14 CAN 2.0 Command

NA

2.1.15 PCIE Command

NA

4. Statements

FCC Statements

This device complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Notice:
Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

The antenna(s) used for this transmitter must not be co-located of operating in conjunction with any other antenna or transmitter.
This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. Ln order to avoid the possibility of exceeding the Fcc radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8inches) during normal operation.

IC Statements

This device complies with Industry Canada license-exempt RSS standard(s).
Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.
This Class B digital apparatus complies with Canadian ICES-0003.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.
L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la IC pour un environnement non contrôlé.
L'antenne doit être installé de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps. L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

The device for the UNII band-1 is only for indoor use.