

MC5728V - Release Notes v1.56

Summary

Firmware v1.56 is a final candidate MR for the Sierra MC5728V voice and data modem.

Supported Platforms

MC5728V (QSC) & MC5728 (MDM)

Release Components and Target Carriers

FlashCDMA for field updates using WinXP / WinVista over USB connection to the modem

FlashCDMA_MC5728_01.56_00_sprint_027.011_000.exe - Sprint

FlashCDMA_MC5728_01.56_00_vzw_004.011_000.exe – Verizon

Port Mapping

If you are only using the Windows PC driver or with the Sierra Watcher connection manager, then the modem uses a 27.010 “USB Mux” driver and the below port map settings are overridden for that session. However, some customers need to use the multiple USB endpoints in their drivers and devices and the port mapping may impact what services are on what USB endpoint and/or UART. This is true of the WinCE SDK or Linux SDK from Sierra Wireless.

Further details are available in the USB Developer’s Guide at the developer site below.

http://developer.sierrawireless.com/en/Resources/Resources/AirPrime/Minicard/2130634_AC_AP_USB_Driver_Developers_Guide.aspx

- The default port mapping has changed in the v1.13.01 releases to “CnS / DM over HIP” (0x4D / 77 dec) to ensure backwards compatibility with the previous MC5725 and MC5727 products. This new setting is only available from v1.13 on forward.
 - Linux SDK v1.3.0.0 (or newer) should be used for this setting.
 - All WinCE SDK releases require this setting.
- SKU 1100905 for Sprint (v1.12) was previously set to DM over UART (0x4C / 76).
- SKU 1100932 for Verizon (v1.10.1) was previously incorrectly set to 0x4A, and was temporarily updated to DM over Endpoint 8 (0x4B / 75) for v1.10.1.
 - Linux SDK v1.2.x.x should be used for this setting (DM over EP8 / 0x4B)

The port mapping can easily change with these AT commands:

- AT!OEM=176 (lower level lock)
- AT!SERIALPORTMAP? (Return value will be 76, for instance – decimal value for 0x4C).
- AT!SERIALPORTMAP=75 (decimal value for 0x4B)
- AT!RESET

Supported port mapping modes are:

- 74 / 0x4A – this mode should not be used.
 - Please note that CnS is incorrectly assigned for this package and not working except for 27.010 mux mode.
 - EP2: AT/PPP, EP4: HIP (carrying DM but CnS broken), EP5: NMEA GPS)
- 75 / 0x4B – “DM over EP8”

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- this mode breaks out DM stream to its own USB endpoint so you don't have to demux it from the HIP/CnS protocol stream, simplifying host device USB driver design and operation.
- EP2: AT/PPP, EP4: HIP (carrying CnS), EP5: NMEA GPS, EP8: DM / diag)
- 76 / 0x4C – DM over UART
 - this mode breaks out DM stream to its own UART port so you don't have to demux it from the HIP/CnS protocol stream. Some OEM's have found connecting to the UART port for diagnostics logging the easiest to implement.
 - EP2: AT/PPP, EP4: HIP (carrying CnS), EP5: NMEA GPS, UART1: DM / diag)
- 77 / 0x4D – DM over HIP – v1.13.01 default setting (and future releases)
 - DM and CnS are multiplexed on one USB endpoint, which is how it was done on the previous MC5725 and MC5727 modules. For customers that already have an existing driver, then the driver will continue to be compatible with the MC5728V port mapping.
 - EP2: AT/PPP, EP4: HIP (carrying CnS & DM), EP5: NMEA GPS)

Known Issues or Usage Changes

GPS Engine Gen 7

- **WARNING on Downgrading to FW version older than 1.20**
 - Downgrading the firmware from version 1.20 and later to a version older than 1.20 triggers EFS rebuild due to Qualcomm file system super version change. Perform NV backup to save EFS contents before upgrading, if downgrading is desired at later time.
- The Smart Mode Standalone Fallback to MSB mode is no longer supported.
 - If a standalone fix is attempted in which assistance data is needed, missing or stale, the device will NOT attempt to download the needed assistance data from the PDE (like in the legacy fallback to MSB mode) but rather continue its standalone tracking to demodulate the needed assistance data from the satellites directly. For customers using the legacy Smart Standalone Mode, we recommend changing your application PRI settings to use the Smart MSB Mode.
- Enabling the Smart MSB mode shall “perform GPS data demodulation either when a fix attempt is using the Standalone mode or when a fix attempt involves MSB mode.”
 - In other words, the device will perform simultaneous data demodulation for Standalone AND MSB initiated requests.
- QOS Accuracy parameter usage
 - Also please note that in legacy MSM chipsets, the QOS accuracy parameter was ignored when returning the fix results.
 - This is changed in the Gen 7 Engine because the QOS accuracy parameter is also considered in the fix computation. For example, in legacy MSM chipsets, a fix requested with 1000 meters of accuracy may have returned a position location with 100 meters of accuracy (better than expected – it is this expectation that needs to be changed when working with QSC targets).
 - In QSC chipsets on the other hand, if a fix with 100 meters of accuracy is desired, then the fix should request 100 meters of accuracy as a parameter and NOT 1000 meters. In other words, the accuracy parameter matters. Passing 100 meters of accuracy shall return a fix within tens of meters of position error, while passing a value of 1000 meters may return a fix with several hundred meters of position error. In short, you will get a low accuracy fix if you request a high position error value (e.g. 1000 m), and you will get a higher accuracy fix if you request a low position error value (e.g. 50 or 100 m).

WAN/GPS GPIO Indicators – This release does not incorporate the feature of controlling the GPIO to indicate WAN and GPS activities (customer-specific).

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Upgrade Instructions

1. Connect modem to host using dev kit and USB cable (or equivalent connection on OEM device)
2. Close all applications using the modem (Connection Manager, HyperTerminal, QXDM, etc)
3. Run FlashCDMA updater tool exe and click start
4. Click "OK" button to exit the program when the download is complete

Baselines:

Qualcomm baseline	1. AMSS6085 Release 3.3 patch3[Q6085BSNACAZ33701] 2. AMSS6085 Release 3.3 patch4[Q6085BSNAVAZ33800A] - 13 files (per CR9467)	
Qualcomm SBA	1. SBAQ6085BSNACAZ33504_1H_08212009 2. SBAQ6085BSNACAZ33701_0B_11052009 3. SBAQ6085BSNACAZ33701_0A_10202009	
SWI QSC baseline	SWI6085_FD.01.54	
SWI 6800v2 baseline	SWI6800V2_FD.01.69	
CNS baseline	CNS_1.27	
CIQ baseline	CIQ Agent	3.1.11
	DO booster pack	1.0.7
	MPP booster pack	1.0.2
	UI booster pack	1.0.5
	VC booster pack	1.0.6
	WAP booster pack	1.0.4
OMA baseline	RedBend RDM Library	2.1.1.13
	RedBend <rdmtree>	1.02
	RedBend vCurrent Library	4.3.15.7
	SWI OMA-DM Client	2.0
	SWI dmtree file	3.5

Changes from Baseline Release v1.33.01

Version	Change ID	Description
1.34	APISW00009531	Add Board Support for OWL Product

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1.34	APISW00009556	Optimize the clock for Numonyx nand working @ 9.6MHz
1.34	APISW00009574	Add Debug messages for CNS Object CNS_WIMAX_OP
1.34	APISW00009622	GPIO control for OWL
1.34	APISW00009696	Athena:Periodic FUMO Update occurs within interval after NIFUMO & CIFUMO completed
1.34	APISW00009717	Athena:Unexpected PRL Periodic Updates Occuring
1.34	APISW00009743	CnS Tech Storage Allocation for HDR Pilot Sets needs to be larger to prevent memory corruption
1.34	APISW00009763	CnS Object 0x107A CNS_WIMAX_OP Notification Capability Turned off in Merge
1.34	APISW00009780	Turn on RUIIM VREG PMIC Supply before Reading Product ID GPIO's
1.35	APISW00009818	Add support for W_DISABLE in Owl CDMA Modem (GPIO 12)
1.35	APISW00009889	Equation used in Temperature calculation in OWL
1.36	APISW00008153	RTN reset does not set work mode to 0
1.36	APISW00009470	RETEST on Athena: HFA retry attempts is set to 255
1.36	APISW00009502	Athena:HFA runs on Device in Locked Mode
1.36	APISW00009532	Athena:CI-FUMO AT User Not Prompted for FW 1.27 -> 1.25 downgrade
1.36	APISW00009697	Implement Sprint AT commands v1.6
1.36	APISW00009754	Implement gpsOneXTRA for RAPTOR products using a client centric solution
1.36	APISW00009786	Force Image created for PPF to perform default NV setting based on product detected
1.36	APISW00009792	Athena:Periodic FUMO Update occurs within interval after NIFUMO & CIFUMO completed
1.36	APISW00009800	Reenable support for CnS Object 0x500B (CNS_SB_GO_DORMANT) which was commented out for QSC
1.36	APISW00009809	USB Enumeration provides Mass Storage even on device that does not support
1.36	APISW00009865	CNS_DM_CONFIG Object Set Handler Logic Incorrect for Disabling Session Types
1.36	APISW00009866	MC5728 fw 1.33.01 Spirent Co-Cert: lab test completed - fix MIP errors
1.36	APISW00009868	OMADM : User-agent header is missing in HTTP connect request
1.36	APISW00009881	OMA-DM client crashes while running HFA
1.36	APISW00009916	Remove temporary support for W_DISABLE in Owl CDMA Modem (GPIO 12)
1.36	APISW00009921	Changes needed to modem firmware to support 4G OMA for Owl
1.36	APISW00009925	NV Item #24642 (NV_SWI_KB_CNT) should not be in OEM list which causes it to be cleared on RTN reset
1.36	APISW00009926	Interrupt the PXA when removal of SD card is detected.
1.36	APISW00009785	Make changes to cnspsdmhost.h for GPS XTRA support.
1.37	APISW00010056	Modem does not send CNS_DM_SESSION_STATE Notification after a CNS_DM_SESSION_CANCEL
1.37	APISW00010109	AT!PRLVER no longer works without the ? Appended
1.37	APISW00010112	Failing to register external nodes should not prevent OMA from running
1.37	APISW00010118	Make Owl CDMA Default NV Changes as described
1.38	APISW00010012	Add board support for SL5011

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1.39	APISW00010152	Owl CDMA Modem USB Issues
1.40	APISW00010180	GPS Autotrack USB Controlled Suspend/Resume Issue
1.40	APISW00010186	Turn on CnS Sleep Support for Owl
1.40	APISW00010214	Modify the GPS Cal NV Items for Owl per Hardware Instruction
1.40	APISW00010250	SwiOwl 0.06.0 - AT!4GSERVICE does NOT perform range checking
1.41	APISW00010428	Update Documentation for QSC PPF Creating and Validating
1.41	APISW00010587	SD Card Mounting While USB Bus Suspended seems to fail causing no SD Card Detect Signal to PXA Host
1.41	APISW00010610	Owl:Intermittent:GPS w/Continuous Fix not updating according to Fix Rate
1.42	APISW00010838	Add CDMA Product ID Support for Apollo Project
1.42	APISW00010840	When HDD available need to ensure the CDMA firmware is properly configured (GPIOs, RF, Memory, etc) for the Apollo Project.
1.42	APISW00010891	Modify the firmware to be able to detect the NAND Flash SDRAM size
1.42	APISW00010945	Investigate issue with Factory CCT failures over Proxy in Owl Device
1.43	APISW00009456	OMA-DM : HFA end indication is sent at the end of the CIDC session, not when all three steps have been completed
1.43	APISW00010251	Implement gpsOneXTRA for RAPTOR products using a client centric solution
1.43	APISW00010799	MC5728:Co-Cert:OMA: No FW Update When HFA Chained CI FUMO
1.43	APISW00011203	Populate 4G OMA dmtree
1.43	APISW00011207	Allow OMADM Session When 3G Modem State is Dormant
1.43	APISW00011219	add CnS nv read/write support for NV_SWI_4G_OMA_UPDATED_I (24800)
1.44	APISW00011318	HFA End Notification (After DC, PRL and FUMO) indicates Session Type FUMO instead of HFA
1.44	APISW00011319	Modem sometimes unable to perform NIA Retries
1.44	APISW00011345	Owl:NI PRL While Data Session Is Active Results in Processing of NI PRL
1.44	APISW00011346	Sync NV Item Changes from SL501x Line
1.44	APISW00011352	ATZ Command Turns off OMA DM Debug Message Generation
1.44	APISW00011412	Turning GPS Auto Tracking OFF then ON quickly could cause the ON to be skipped leaving the GPS Tracking Shutdown..
1.44	APISW00011488	Add Board Support for Buzzard Product
1.44	APISW00011527	MDM6085:Owl:Device does not process NI commands while in Dormant mode
1.44	APISW00011602	USB Remote Wakeup Guard Time is too small for some hosts
1.45	APISW00011600	MDM6085: Support 3G memory device (U300 HYNIX)
1.45	APISW00011624	Fix bug in EVDO to support SD CARD
1.45	APISW00011627	Device using MTU of 1500 on 3G network - needs to be 1472 in OMADM session
1.46	APISW00011164	Add Some Sprint 2.01 Requirements to 3G OMA DM
1.46	APISW00011551	Hawk: Add MEID AT command support
1.46	APISW00011552	Update UI_MODE to Sprint 2.01 OMADM specification
1.46	APISW00011555	Add Sprint 2.54 nodes to dmtree
1.46	APISW00011593	MDM6085 - Support for SyncML logging

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1.46	APISW00011677	Stop NI Retry After 1 Hour
1.46	APISW00011758	Owl:NI PRL While Data Session Is Active Results in Processing of NI PRL
1.46	APISW00011765	Hawk: OMADM changes for MEID support
1.46	APISW00011802	Remove 1X mode and filtering of notifications during HFA.
1.46	APISW00011806	Hawk: Initialize the MEID Enabled Flag to TRUE
1.47	APISW00011827	Hawk: ToDo - MEID sent OTA via OMADM might need to be 14 digits
1.47	APISW00011919	Populate DM Tree with Parsed LTE APN values
1.48	APISW00012017	ATI reports incorrect MEID if 8th digit is zero.
1.48	APISW00012020	Modify NI holdoff defaults to behave like current Overdrive Pro
1.49	APISW00012042	DM Tree Lookup Mistakes Values for Node Names
1.49	APISW00012044	Hawk: ati should display 14 hex digits for meid for all possible meid values
1.50	APISW00012069	at!dmboot does not check NV item NV_SWI_MEID_SUPPORT_I when setting MEID/ESN
1.51	APISW00012089	MEID is not set in memory when at!dmboot is run during factory provisioning
1.52	APISW00012117	Hawk: MDN or MSID set to the default value did not trigger HFA
1.52	APISW00012159	AC803S (Hawk): OMA/HFA client fails to cancel OMA while in session
1.52	APISW00012189	Modify MEID unlock to require challenge/response before execution
1.52	APISW00012215	Hawk: move dm_default_imsi_s1() to CNS
1.53	APISW00005455	CNS_ACTIVATION_STATUS reports incorrectly if MEID is enabled
1.53	APISW00012249	Hawk: If PRL or FUMO Fails During HFA, It May Continuously Retry Until Successful or Reboot
1.53	APISW00012295	Hawk, MDM6085, Clear HDR session on Power-up - ticket 38014
1.54	APISW00012406	Hawk: Add output message hex dump to debug
1.54	APISW00012518	Set OMA state to pending at start of HFA
1.55	APISW00012577	QSC6085 - Implement EFS backup and recovery mechanism
1.55	APISW00012617	Hawk: Extra char's in LTE field of the dmtree after an NI LTE config update
1.55	APISW00012618	Port gattting VZW changes from SL501X
1.56	APISW00012638	Repair OMA DM tree in the event of a corrupted DM tree file - hawk
1.56	APISW00012639	Prevent NI session during HFA - hawk