Q64 SOFTWARE USER GUIDE

Revision: **003**
Date: **February 27, 2008**

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Q64 software user guide

Reference:	WA_DEV_Q64_UGD_003
Revision:	003
Date:	February 27th, 2008

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Overview

The aim of this document is to provide Wavecom customers with a functional user guide of the Q64 Wireless CPU® on the software point of view, with or without the usage of GR plug-in.

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Document history

Level	Date	History of the evolution	Writer
001	November 1 2007	Creation	Wavecom
002	January 14 2007	Changed GPIO30 to GPIO28 Added audio filter coefficients	Wavecom
003	February 27 2008	Added synchronization with Wavecom tools	Wavecom

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1   Introduction

1.1   Related documents

[1] AT Commands Interface Guide for Open AT® Firmware v6.5 (Ref:WM_DEV_OAT_UGD_035) *

[2] AT Command Manual for GR64 & GS64 Wireless CPU® - Revision R4B (Ref:WI_DEV_Gx64_UGD_001-003)

[3] GR64 & GS64 Wireless CPU® Release Note – R4B to R4C (Ref:WI_DEV_Gx64_DVD_003)

[4] AT commands delta between GR plug-in and GR64 (Ref: WA_DEV_Q64_UGD_001)

* Please refer to the manual corresponding to the Open AT Software Suite that you are using.

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Abbreviations and glossary

AT	Attention
CPU	Central Processing Unit
OS	Operating System

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2   Q64 with GR plug-in

2.1   GR plug-in concept

GR plug-in is an Open AT® application that translates GR64 AT commands into WMP100 AT commands to help GR64 users porting their application by providing the same syntax for 88% of the existing GR64 AT Commands.

The following figure describes the different cases that are handled by GR plug-in.
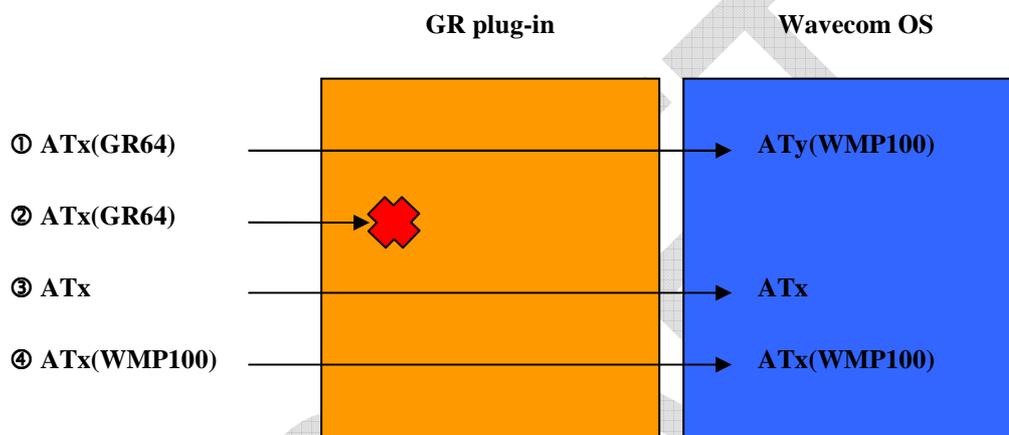

Figure 1: GR plug-in concept

Case ①

The AT command is specific to GR64 and is processed by the GR plug-in, which uses the equivalent WMP100 AT command to perform the functional translation. The resulting Q64 AT command can be fully or partially compatible with the original GR64 AT command, depending on the degree of compatibility between WMP100 and GR64. See [4] for more details.

Case ②

The AT command is specific to GR64 but is not processed by the GR plug-in, either because the functionality has no equivalent on WMP100, or because the AT command translation will be achieved in a future release of the GR plug-in. In this case, the Q64 AT command will return ERROR. See [4] for more details.

Case ③

The AT command is common to both GR64 and WMP100 and is processed by the GR plug-in, which translates the differences (if any) in number of parameters, parameters range… The resulting Q64 AT command is then fully or partially compatible with the original GR64 AT command, depending on the degree of compatibility between WMP100 and GR64. Some of these AT commands may only be translated in a future release of the GR plug-in, therefore case ④ will apply. See [4] for more details.

<u>**Case ④**</u>

Through the GR plug-in, Q64 users still have access to the WMP100 AT commands set, except for AT commands common to GR64 and WMP100 that have already been translated as in case ③. See [4] for more details.

2.2 Q64 synchronization with Wavecom tools when using GR plug-in

In order to match GR64 behavior, GR plug-in internally sets Q64 CPU®UART1 in auto-baud mode as factory settings. This mode is not compatible with Wavecom tools as Target Monitoring Tool, Terminal Emulator.

To be able to use Wavecom tools with GR plug-in, users have first to set Q64 to a specific baud rate (115200 for example) using AT+IPR command issued from any type of terminal (HyperTerminal for example). Then, Wavecom tools can synchronize to Q64 Wireless CPU®.

3   Q64 without GR plug-in

Some of the Q64 interfaces or functionalities are internally handled by GR plug-in. But without GR plug-in, these interfaces or functionalities must be handled by Q64 users.

3.1   Q64 / WMP100 signals matching table

The following table describes the signals matching between Q64 and WMP100. To access Q64 signals, Q64 users must use WMP100 signals and WMP100 AT commands (see [1]).

Q64 signals	WMP100 signals
GPIO1	GPIO19
GPIO2	GPIO20
GPIO3	GPIO21
GPIO4	GPIO22
GPIO5/ADIN4	GPIO23 & AUX-ADC1
GPIO6/LED	GPIO28 & FLASHLED
GPIO7/DSR1	GPIO40/DSR1
GPIO8/RI	GPIO42/RI
GPIO9/RTS1	GPIO38/RTS1
GPIO10/DTR1	GPIO41/DTR1
GPIO11/DCD	GPIO43/DCD1
GPIO12/CTS1	GPIO39/CTS1
GPIO13/SDA	GPIO27/SDA
GPIO14/SCL	GPIO26/SCL
GPIO15	GPIO24
GPIO16	GPIO30
GPIO17/DFM1	GPIO37/RXD1
GPIO18/DTM1	GPIO36/TXD1
ADIN1	AUX-ADC2/BAT-TEMP
ADIN2	AUX-ADC0
ADIN3	AUX-ADC1

3.2   GPIO6/LED special case

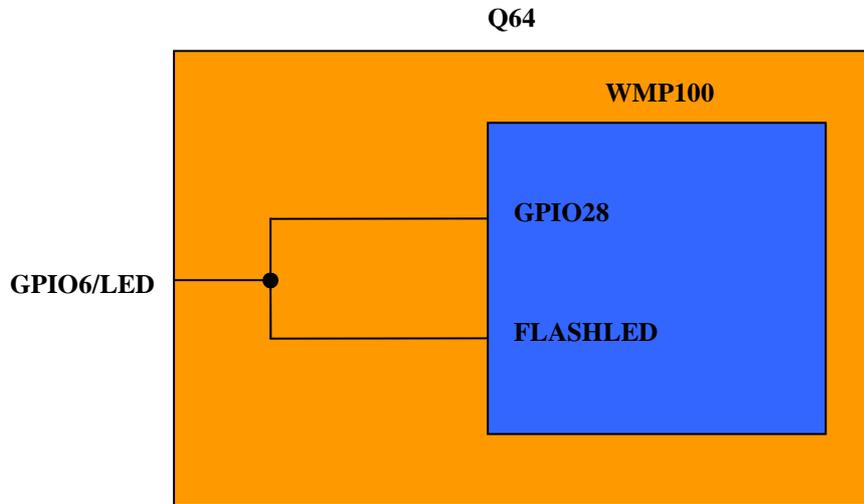The following figure describes the GPIO6/LED schematics

Figure 2: GPIO6/LED schematics

To avoid conflicts when using GPIO6, FLASH LED must be prior desactivated using AT+WHCNF=1,0 command.

For the same reason, when using LED, GPIO28 must be prior released using AT+WIOM=0,"GPIO28" command.

3.3 ADIN3 and GPIO5/ADIN4 special case

The following figure describes the ADIN3 and GPIO5/ADIN4 schematics
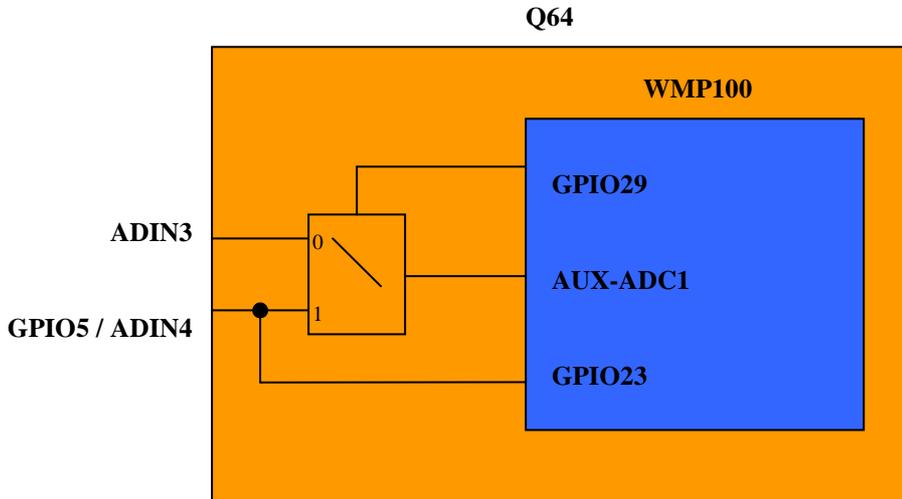
Q64

Figure 3: ADIN3 and GPIO5/ADIN4 schematics

To read ADIN3, GPIO29 must be prior set as output and to 0 using AT+WIOM=1,"GPIO29",1,0 command.

To read ADIN4, GPIO29 must be prior set as output and to 1 using AT+WIOM=1,"GPIO29",1,1 command and GPIO23 must be prior released using AT+WIOM=0,"GPIO23" command.

3.4 Power off

Q64 internally emulates GR64 hardware power off functionality and GR plug-in automatically configures some interface to achieve this. Without GR plug-in, the power off functionality can be configured by entering the following AT commands:

AT+WFM=1,"OFFWHENUNPLUG"

AT+WIPC=1,"INT1",0,0

AT&W

3.5 Audio filter coefficients

Specific audio filter coefficients are required on Q64. These coefficients are automatically set by the GR plug-in and restored when AT&F command is issued. Without GR plug-in, these coefficients are set in production but if AT&F command is issued, WMP100 default audio filter coefficients will be restored. Therefore, if AT&F command is issued, the following AT commands need to be entered to set Q64 audio filter coefficients:

AT+WADF=1,1,1092,62123,63373,7314,1092,0,0,52749,3404,12787
AT+WADF=0,2,4032,61562,57484,8051,4032,0,0,61617,3742,3919

AT+WADF=1,3,0,0,1826,443,1826,0,0,0,0,4096
AT+WADF=0,4,0,0,0,0,4096,0,0,0,0,4096

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