

bq27505-J3 to bq27505-J4 Change List

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ABSTRACT

This document describes the change made from bq27505-J3 to bq27505-J4. The latest ordering information and data sheet are available on the Texas Instruments (TI) Web site.

NOTE: bq27505-J3 uses firmware version 2.20, and the bq27505-J4 uses firmware version 2.24.

1 Introduction

The bq27505-J4 firmware version 2.24 has been released to enable several feature additions and performance improvements. The following new orderable part numbers have been released which ship preprogrammed with this new version of firmware:

- bq27505YZGR-J4
- bq27505YZGT-J4

The latest version of the evaluation software is required to be able to read and write all the data flash configuration locations. The necessary evaluation software and the corresponding v2.24 SENC file can be downloaded from the bq27505-J4 product folder on the TI Web site at www.ti.com. Existing bq27505 (including EVMs) can be upgraded to the latest firmware version by following the instructions in application report [SLUA453](#).

NOTE: If a golden image created for another version of bq27505 is loaded into an integrated circuit (IC) running firmware version 2.24, the IC becomes nonfunctional and must be replaced. Ensure that all instructions in application report *Updating Firmware With the bq2750x and EVM (SLUA453)* are followed if upgrading ICs or converting your production line to bq27505-J4. The best practice is to generate a new golden image (DFI file) for bq27505-J4.

2 Change Details

Table 1. Change Details

CHANGE	bq27505-J4	bq27505-J3	COMMENTS
Add RFACSTEP bit in OpConfigB	Resistance update scaling is set to either min or max, and RUP_DIS is set if the computed resistance scaling is outside the bound of Min/MaxResFactor.	No scaling resistance update if the resistance computed is outside the bound of Min/MaxResFactor	Resistance must be updated even if the computed scaling is out of the Min/MaxResFactor bound, but the RUP_DIS flag must be set to indicate the out-of-bound condition.
Add New data flash parameters	Add New DF parameters: <ol style="list-style-type: none"> 1. OpConfig B bit (bit 0) option to indicate Factory Restore is in progress. 2. Factory Restore Key 3. Restore Counter 4. DOD at EOC Default for cell 0 and 1 5. Default Avg I, Avg P Last Run 	Does not have the factory restore control in firmware. Does not have DOD at EOC defaults Does not have Avg A/I Last Run defaults	Improve the factory restore capability

Table 1. Change Details (continued)

CHANGE	bq27505-J4	bq27505-J3	COMMENTS
Change to Qmax Update	If Qmax Capacity Error is reached or RUP_DIS is set, clear Qmax Passed Q data. If Qmax Max Delta is exceeded, clear Qmax Passed Q data	Qmax Passed Q data is not cleared even though the Qmax Capacity Error or Qmax Max Delta is exceeded	Qmax may be learned incorrectly
Add OCV load Compensation	OCV load compensation is added	No OCV load compensation	Improve the OCV reading under load at system power up
Firmware improvement for gauge initialization process	Use ADC current for OCV compensation on battery insertion, reset, or wake from hibernate. Add delay before reading V, to allow V to settle. Time to BAT_GD assertion improved to about 1.7–1.8 seconds.	Does not use ADC current for OCV compensation on battery insertion. No delay on V reading. Time to BAT_GD is approximately 4 seconds.	Improve battery insertion process on OCV reading and reduce the BAT_GD assertion time to speed up system power up hold due to gauge OCV reading
Firmware change to remove the dependency of CHG_INH and XCHG	CHG_INH and XCHG behaviors are independent.	CHG_INH and XCHG behavior are dependent.	CHG_INH and XCHG must be independent.
Improve SOC_INT initialization so that the first interrupt is generated	SOC_INT first interrupt is counted	SOC_INT first interrupt event is lost if SOC_INT is active high	SOC_INT is used by host

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