RRG5322x-A20

PMIC5030 with Step-Down Switching and LDO Regulators

Description

The RRG5322x-A20 is a highly integrated, highly efficient PMIC with programmable precise output voltage power solution for all DDR5 Server DIMM modules, with six step-down switching output regulators and three or four LDO output regulators. The PMIC is fully compliant with the JEDEC DDR5 PMIC5030 specification. The PMIC is powered from two input power supplies (VIN_Mgmt and VIN_Bulk) from the system board to power its switching and LDO output regulators.

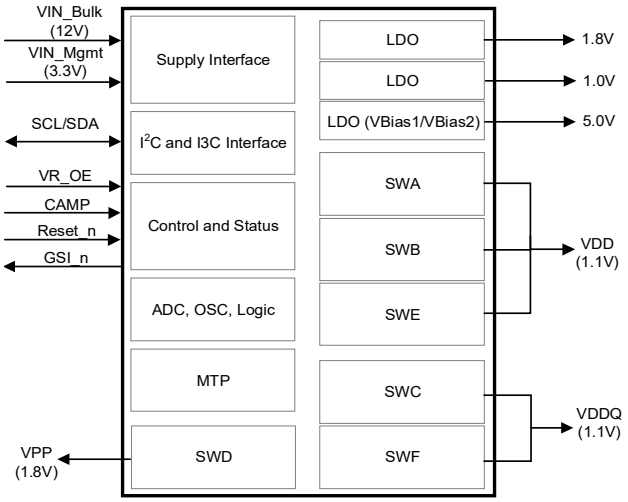
The RRG5322x-A20 has numerous advanced protection schemes to protect itself and the entire BOM's contents of the DDR5 server DIMM modules. The PMIC offers secure mode operation to defend against malicious attacks and has an advanced I3C bus that can operate at maximum speed of 12.5 MHz with low voltage I/O operation.

The PMIC is available in small 5.55 × 9.0 mm form factor in 113-pin FCCSP package with enhanced solder joint reliability and thermal dissipation.

Applications

- DDR5 RDIMM
- DDR5 MRDIMM
- CXL

Block Diagram



Features

- VIN_Bulk input supply range: 4.25 V to 15.0 V
- VIN_Mgmt input supply range: 3.0 V to 3.6 V
- Six step-down switching regulators: SWA, SWB, SWC, SWD, SWE, and SWF
- Programmable configuration of one three-phase, two dual-phase, or six single-phase regulators.
- Three or four LDO regulators: One or two VBias (VBias1, VBias2), VOUT_1.8V, VOUT_1.0V
- Automatic switchover from VIN_Mgmt input supply to VIN_Bulk input supply
- Error injection capability
- Persistent error log registers with detailed information.
- Write-protect and programmable modes of operation
- Independently programmable output voltages, power up and power down sequence for switch regulators
- Input and output power-good status reporting mechanism
- VIN_Bulk input supply protection feature: Input over voltage and input under voltage
- Output switch regulators protection feature: Output over voltage, output under voltage, output current limiter
- Output current and power measurement, output current threshold mechanism
- Temperature measurement, temperature warning threshold, critical temperature shutdown
- Multi Time Programmable Non-Volatile Memory
- MTP Error Check capability
- Unique serial number for traceability
- Programmable and DIMM specific registers for customization
- General Status Interrupt Function
- Reset input pin to reset various aspects of PMIC
- Auto Power-On capability
- VR Output Enable Pin to turn on the regulators
- Flexible Open-Drain IO (I^2C) or Push-Pull IO (I3C Basic) Support

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