Reference Circuit 6322

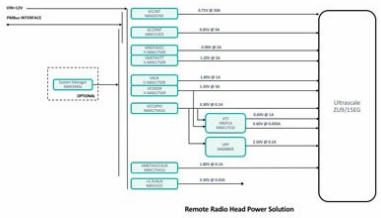
REMOTE RADIO HEAD POWER SUPPLIES

OVERVIEW | DETAILS | DESIGN RESOURCES

This design provides all the power-supply rails and power sequencing necessary to power Xilinx™ ZU9/15 Remote Radio Head power supplies. The module accepts 12V input voltage and generates eleven power rails. The VCCPINT output is set to 0.85V with 3A output current capability by using the MAX15303 step-down switching regulator. The VCCINT output is set to 0.72V with 20A output current capability by using the MAX20743 PMBus™ step-down switching regulator. Both VMGTAVCC and VMGTAVTT output voltages are generated from the MAX17509 dual step-down regulator. VMGTAVCC is set to 0.9V with 2A capability and the VMGTAVTT is set to 1.2V with 2A current capability. Both VMGTAVCC and VMGTAVTT output voltages have less than 10mV output ripple, which meet the ripple requirements. Another MAX17509 IC generates the VAUX and VCCODDR output voltages. VAUX is capable of delivering 1A at 1.8V and VCCODDR is capable of delivering 3A at 1.2V. The MAX17541G generates the VCCOPIO output voltage. VCCOPIO is capable of delivering 0.5A at 3.3V. Another MAX17541G IC generates the VMGTAVCCAUX output voltage. VMGTAVCCAUX is capable of delivering 0.5A at 1.8V and have less than 10mV output ripple. The MAX8869 generates the VPP output voltage. VPP is capable of delivering 0.1A at 2.5V. The MAX17510 generates the VTT and VREFCA output voltages. VTT is capable of delivering 1A at 0.6V and VREFCA is capable of delivering 0.005A at 0.6V.

The power module provides extremely compact, high-efficiency power solutions with high-precision output voltages and excellent transient response.

Diagram



Enlarge+

Features

- InTune™ Digital PoL SMPS MAX15303
  - 600kHz Switching Frequency
  - 12V Input Voltage
  - 0.85V at 3A (VCCPINT)
- Integrated Buck Regulator SMPS MAX20743
  - 400kHz Switching Frequency
  - 12V Input Voltage
  - 0.72V at 20A (VCCINT), 10mV ripple
- Dual Buck Regulator SMPS MAX17509
  - 1MHz Switching Frequency
  - 12V Input Voltage
  - 0.9V at 2A (VMGTAVCC), 10mV ripple
  - 1.2V at 2A (VMGTAVTT), 10mV ripple
- Dual Buck Regulator SMPS MAX17509
  - 1MHz Switching Frequency
  - 12V Input Voltage
  - 1.8V at 1A (VAUX)
  - 1.2V at 3A (VCCODDR)
- Buck Regulator SMPS MAX17541G
  - 600kHz Switching Frequency
  - 12V Input Voltage
  - 3.3V at 0.5A (VCCOPIO)
- Buck Regulator SMPS MAX17541G
  - 600kHz Switching Frequency
  - 12V Input Voltage
  - 1.8V at 0.5A (VMGTAVCCAUX)
- Linear Regulator MAX8869
  - 3.3V Input Voltage

    - 2.5V at 0.1A (VPP)
- DDR Linear Regulators MAX17510
    - 1.2V Input Voltage
    - 0.6V at 1A (VTT)
    - 0.6V at 0.005A (VREFCA)