DEVA
COM.0 Type 7 Evaluation Baseboard
Rev. A.0  IT version

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set jumper 1-2 if LAN Controller is powered from standby voltage (default)
set jumper 2-3 if LAN Controller is powered from S0 voltage

Gigabit LAN

set jumper 1-2 if LAN Controller is powered from standby voltage (default)
set jumper 2-3 if LAN Controller is powered from S0 voltage
SH13 BMC (UART/SPI/MAC)

Remove in IT version

50MHz

Digital Video Output

BMC_GPIOZ3

VCC3V3_BMC

GPIOZ4_VPOG6_NORA4

X19

GPIOZ5_VPOG7_NORA5

R22

Layout Notes:

Maximum routing trace length:
MAC2: RGMII (1G/100M/10M bps) interface is 4 inches.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Definition</th>
<th>Value = 0</th>
<th>Value = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPIO54</td>
<td>VGA memory size selection</td>
<td>16 MB</td>
<td>64 MB</td>
</tr>
<tr>
<td>GPIO55</td>
<td>Reserved</td>
<td>Default</td>
<td>Disallowed</td>
</tr>
<tr>
<td>GPIO56</td>
<td>Enable VGA BIOS ROM</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>GPIO57</td>
<td>VGA Class Code selection</td>
<td>Non-VGA</td>
<td>VGA</td>
</tr>
<tr>
<td>GPIO58</td>
<td>Enable BMC 2nd boot watchdog timer</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>GPIO59</td>
<td>Select USBBCI input frequency</td>
<td>24MHz</td>
<td>48MHz</td>
</tr>
<tr>
<td>GPIO60</td>
<td>Disable LPC to decode SuperI.O address</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>GPIO61</td>
<td>Enable fast reset mode</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**BMC Heart Beat led**

- **VCC3V3_BMC**: 3.3V DC Input Power
- **VCC**: Power from 3.3V
- **Reset#**: Reset Signal
- **CLK**: Clock Signal
- **VBIOS**: BMC VBIOS
- **R229 R1%2k2S02**: Resistor
- **R230 R1%2k2S02**: Resistor
- **NI**: Not Implemented
- **U30 USPIFLASH_256M_SO16**: SPI Flash Memory
- **VBIOS_SPICK**: SPI Data Input
- **CLK**: Clock Signal
- **VBIOS_SPIMOSI**: SPI Data Output
- **A0 modify**: Additional modification

**Additional Components**

- **BMC Heart Beat led**: Indicator
- **BMC_VGA_BLUE**: BMC VGA Blue Signal
- **BMC_VGA_GREEN**: BMC VGA Green Signal
- **BMC_VGA_RED**: BMC VGA Red Signal
- **BMC_VGA_DATA**: BMC VGA Data Signal
- **BMC_VGA_GND**: BMC VGA GND Signal

**Other Signals**

- **GPIOP7_TACH15**: General Purpose I/O Pin
- **GPIOP6_TACH6_VPIR4**: General Purpose I/O Pin
- **GPIOP5_TACH13**: General Purpose I/O Pin
- **GPIOP4_TACH4_VPIR2**: General Purpose I/O Pin
- **GPIOP3_TACH12**: General Purpose I/O Pin
- **GPIOP2_TACH11**: General Purpose I/O Pin
- **GPIOP1_TACH10_VPIR8**: General Purpose I/O Pin
- **GPION4_PWM4_VPIG4**: General Purpose I/O Pin
- **GPION3_TACH9**: General Purpose I/O Pin
- **GPION2_TACH8**: General Purpose I/O Pin
- **GPION1_SGPMLD**: General Purpose I/O Pin
- **BMC_TDI**: BMC Test Data Input
- **BMC_TDO**: BMC Test Data Output
- **BMC_TMS**: BMC Test Mode Select
- **BMC_TCK**: BMC Test Clock
- **BMC_SRST#**: BMC Software Reset
- **SPI_BMC_MOSI <23>**: SPI Master Input
- **SPI_BMC_MISO**: SPI Master Output
- **SPI_BMC_SCK**: SPI Master Clock
- **SPI_BMC_CS#**: SPI Master Chip Select
- **SPI_BMC_I2CCLK**: SPI I2C Clock
- **SPI_BMC_I2CDSR**: SPI I2C Data Receiver
- **SPI_BMC_I2CSR**: SPI I2C Data Sender

**Miscellaneous**

- **USB2AV33**: USB 2.0 Audio
- **USB2AVRES**: USB 2.0 Reset Signal
- **ADC3_GPIW3**: ADC 3 General Purpose Input Pin
- **ADC2_GPIW2**: ADC 2 General Purpose Input Pin
- **ADC1_GPIW1**: ADC 1 General Purpose Input Pin
- **ADC0_GPIW0**: ADC 0 General Purpose Input Pin
- **GPION0_TACH1_VPIG9**: General Purpose I/O Pin
- **GPIOO3_TACH3**: General Purpose I/O Pin
- **GPIOO4_TACH4_VPIR2**: General Purpose I/O Pin
- **GPIOO6_TACH6_VPIR4**: General Purpose I/O Pin
- **GPIOO7_TACH7_VPIR8**: General Purpose I/O Pin
- **GPIOO1_TACH1**: General Purpose I/O Pin
- **GPIOO2_TACH2**: General Purpose I/O Pin
- **GPIOO1_SYSCK**: General Purpose I/O Pin
- **GPIOO5_SPI1CK_VBCK**: General Purpose I/O Pin
- **GPIOO6_SPI1MOSI_VBMOSI**: General Purpose I/O Pin
- **BMC_USB_BP**: BMC USB Power
- **BMC_USB_BN**: BMC USB Ground
Single end PCB Impedance: 55 Ohms
Differential end: 110 Ohms
SPI BIOS Flash

- SPI CON_MOSI
- SPI CON_CS
- SPI CON_CLK
- SPI_PWR

BIOS_DIS1#  BIOS_DIS0#  BIOS ENTRY / SPI_CS#
- OFF  ON  on-module firmware (default)
- OFF  ON  carrier FWH (not supported)
- ON  OFF  carrier firmware from SPI
- ON  ON  on-module firmware, carrier SPI contains management data

SPI BIOS jumper

- SPI CON_MOSI
- SPI CON_CS
- SPI CON_CLK
- SPI_PWR

BIOS_DIS1#  BIOS_DIS0#  SPI_CON_MOSI  SPI_CON_CS  SPI_CON_CLK  SPI_PWR
- ON  ON  <3,23>  <3,23>  <3,23>  <3,23>
- OFF  OFF  <3,23>  <3,23>  <3,23>  <3,23>

I2C EEPROM

- I2C address: 0xA8

LPC/TPM header

- LPC_FRAME#  <3,12>
- LPC_HDR_CLK
- LPC_CLK  <3,12>
- LPC_AD3  <3,12>
- LPC_AD2  <3,12>
- LPC_AD1  <3,12>
- LPC_AD0  <3,12>

Type detection

- Type 1: 14-V, N.C., N.C., GND, GND
- Type 2 Rev 1.0: N.C., N.C., N.C., N.C., N.C.
- Type 2 Rev 2.0: N.C., N.C., N.C., N.C., N.C.
- Type 6: N.C., GND, N.C., N.C., N.C.
- Type 7: N.C., GND, N.C., GND

SPI BIOS jumper placement

- SPI BIOS jumper
- SPI BIOS jumper
- SPI BIOS jumper
- SPI BIOS jumper

Remove in IT version

Congatec AG Auwiesenstrasse 5 D-94469 Deggendorf Germany
set jumper 1-2 for normal operation (default)
set jumper 2-3 for Battery disconnected

PC beep

set jumper 1-2 for normal operation (default)
set jumper 2-3 for XDP bootstrap

FAN Control

set jumper 1-2 for 12 V fan voltage (default)
set jumper 2-3 for 5 V fan voltage

Power Button

Reset Button

LID Button

SLEEP Button

set jumper 1-2 for normal operation (default)
set jumper 2-3 for Battery disconnected
Postcode Display

VCC5V 0.16A

C442 C100uF20V16X
C441 C100uF20V16X
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1-2, Enabled (default)
2-3, Disabled
set jumper 1-2 for ATX mode (default) set jumper 3-4 for AT mode

load resistors causing additional 200 mA load current at 5V_ATX helping ATX PSU to turn on

set jumper 1-2 for pull-up on PWROK, only for debug
set jumper 1-4 for PWROK from ATX supply (default)
set jumper 5-6 for PWROK from DC/DC (only in single 12 V mode)
Vout = 0.8 \left( \frac{3K}{24K} + 1 \right) = 0.9

Vout = 0.8 \left( \frac{30K}{24K} + 1 \right) = 1.8
X.1 change list
SH01 modify revision to X.1
SH11 modify R103, R104, R105 to 51 ohm
SH13 add R632/4.7k on "BMC_SPICK" to "VCC3V3_BMC"
    modify jumper X61 from 1-2 to 2-3
SH14 mount X33
    add R635/5.6k on "LAN0_MDC_SCL" to GND
    add R636/5.6k on "LAN0_MDC_SDA" to GND
SH19 BOM remove R390, R403
SH20 add "LAN2_MDIO_SDA" and "LAN2_MDC_SCL"
    mount X37
    add R633/5.6k on "LAN2_MDC_SCL" to GND
    add R634/5.6k on "LAN2_MDC_SDA" to GND
SH21 BOM remove R454, R467

A.0 change list
SH01 modify revision to A.0
SH02 modify PCIE16-15 routing
SH04 swap 10G_LED_SDA and 10G_LED_SCL
    and reserve pull-up resistors
    modify LAN23_MICROSE to U7.11
    add pull-up/down (default low) on 10G_PHY_RST* and change U6 to OR gate
    change level shift solution for 10G_PHY_RST* and LAN2_MICROSE
SH05 change D1 HDD LED to yellow
    change F3 to support 12V
SH10 modify PCIE16-15 routing
SH12 modify test from PCIE P14 MUX to PCIE P4 MUX
    modify VCC of U27 to VCC3V3
    BOM remove X28 5D card
SH14 add 150 ohm on RGB signal
SH18 add U69 for level shift
    remove pull-down resistors on X33
    change X33 to 2x3 header
    connect LAN2_MDC_SCL/SDA to X33
    add SW1 to set address
    BOM remove D64-D67, T24-T27, R608-R615
SH19 on X34.3 LAN0_TX_FAULT -> LAN0_TX_DIS
    on X36.3 LAN1_TX_FAULT -> LAN1_TX_DIS
    BOM add R390, R403
    BOM remove R394
    add C469-C471 and GND_SHIELD to improve EMC
SH20 add U70 for level shift
    remove X37 and pull-down resistors on X37
    add SW2 to set address
    BOM remove D68-D71, T28-T31, R620-R626, R631
SH21 on X38.3 LAN2_TX_FAULT -> LAN2_TX_DIS
    on X40.3 LAN3_TX_FAULT -> LAN3_TX_DIS
    BOM add R454, R467
    BOM remove R458
    change LED power to 3.3VSB
    add C472-C475 and GND_SHIELD to improve EMC
SH22 modify VCC of U43 to VCC3V3_SBY, U44 to VCC3V3_BMC
    add D73 to prevent leakage
    remove X42 and change X41 to stackup
SH23 add level shift chip on SPI bus between module and BMC
SH27 add C455, R662, L11 and change L3 to improve EMC
SH29 add C460-C467 and FB51, FB52 to improve EMC
Tune all LED's resistors
IT version modify page 6, 11-17, 18, 20, 22, 23, 26, 28