AMC

GA[0..2] | GA[0..2]
SCL | SCL
SDA | SDA
ENABLED | ENABLE
AMC_PS0_ND | AMC_PS0_N
AMC_PS1_ND | AMC_PS1_N
JTAG{TDI TDO TCK TMS TRST} | JTAG{TDI TDO TCK TMS TRST}

File: sch/AMC.kicad_sch

Power

File: sch/Power.kicad_sch

LM75

SCL
SDA

File: sch/LM75.kicad_sch

AT24C512C

SCL
SDA

File: sch/AT24C512C.kicad_sch

TPS3808

LOW_VOLTAGE_POK

File: sch/TPS3808.kicad_sch

PCF8574

SCL
SDA

File: sch/PCF8574.kicad_sch

MMC

SCL | IPMB_SCL
SDA | IPMB_SDA
ENABLE | ENABLE
GA[0..2] | GA[0..2]
| LOCAL_SCL
| LOCAL_SDA
JTAG{TDI TDO TCK TMS TRST} | LOCAL_JTAG{TDI TDO TCK TMS RST}
AMC_PS0_N | AMC_PS0_N
AMC_PS1_N | AMC_PS1_N
| LOW_VOLTAGE_POK
Handle | Handle
nLED{RED GREEN BLUE} | nLED{RED GREEN BLUE}

File: sch/MMC.kicad_sch

mech

Handle
nLED{RED GREEN BLUE}

File: sch/mech.kicad_sch

Sheet: /
File: amc_template.kicad_sch
Title: AMC Template
Size: A3 | Date: 2022-09-07 | Rev: 1.0
KiCad E.D.A. kicad 6.0.7 | Id: 1/9

Title: AMC Template

| Size: A3 | Date: 2022-09-07 | Rev: 1.0 |
| KiCad E.D.A. kicad 6.0.7 | | Id: 2/9 |

J2A
AMC_Extended_Edge_Connector

J2B
AMC_Extended_Edge_Connector

PWR_FLAG
PWR_FLAG

+12V
SDA
SCL
ENABLE
GA2
GA1
GA0
+3V3
AMC_PS0_N
AMC_PS1_N
GA[0..2]

D4
BAT46GWX

R7 10k   R8 10k   R9 10k   R10 10k
+3V3

JTAG.TCK
JTAG.TMS
JTAG.TRST
JTAG.TDO
JTAG.TDI
JTAG{TDI TDO TCK TMS TRST}

GND

Title: AMC Template

Size: A3 | Date: 2022-09-07 | Rev: 1.0
KiCad E.D.A. kicad 6.0.7 | Id: 3/9

ATmega 128

JTAG-Interface
J3
Conn_02x05_Odd_Even

SPI-Programming Interface
J6
Conn_02x05_Odd_Even

JTAG-Programming-Interface
J4
Conn_02x05_Odd_Even

LOCAL_JTAG.TCK
LOCAL_JTAG.TDO
LOCAL_JTAG.TMS
LOCAL_JTAG.TDI

ISP_MOSI
ISP_RST
ISP_SCK
ISP_MISO

TCK
TDO
TMS
TDI

LOCAL_JTAG.TRST
LOCAL_JTAG.TRST

C5 470nF
C6 470nF
C8 100nF
GND GND GND

C2 10uF
GND

+3V3

R23 33k
R24 33k
+3V3 +3V3

LOCAL_JTAG.TRST 20 RESET
XTAL1 24
XTAL2 23

PA0 51 LOW_VOLTAGE_POK
PA1 50
PA2 49 RTM_PS
PA3 48 RTM_12V_ENABLE
PA4 47 RTM_3V3_ENABLE
PA5 46 RTM_I2C_ENABLE
PA6 45
PA7 44

+3V3
C3 100nF
R18 DNP
AREF 62
GND

ISP_RST 1 PEN

LOCAL_JTAG.TCK 33 PG0
LOCAL_JTAG.TMS 34 PG1
LOCAL_JTAG.TDO 43 PG2
LOCAL_JTAG.TDI 18 PG3
PG4 19

LOCAL_JTAG{TDI TDO TCK TMS RST}

PB0 10
PB1 11
PB2 12
PB3 13
PB4 14
PB5 15 nLED.RED
PB6 16 nLED.GREEN
PB7 17 nLED.BLUE

ISP_SCK
ISP_MOSI
ISP_MISO

Addr_Enable

330 R25
330 R26
330 R27

33k R28
33k R30
33k R32

GA0
GA1
GA2

GA[0..2]

nLED{RED GREEN BLUE}

If other use of SPI interface is wanted,
add 330hms series resistors AFTER
the ISP interface to isolate bus mem-
bers from the ISP interface

+12V
150k R12
30k R13
GND

PRESENCE_12V 61 PF0
USER_DEFINED_PF1_ADC1 60 PF1
USER_DEFINED_PF2_ADC2 59 PF2
USER_DEFINED_PF3_ADC3 58 PF3
TCK 57 PF4
TMS 56 PF5
TDO 55 PF6
TDI 54 PF7

PC0 35
PC1 36
PC2 37 LOCAL_RESET_FPGAS_N
PC3 38 LOCAL_RELOAD_FPGAS_N
PC4 39 LOCAL_FPGA2_INIT_DONE
PC5 40 LOCAL_FPGA1_INIT_DONE
PC6 41 LOCAL_REG_ENABLE
PC7 42 LOCAL_DCDC_ENABLE

Using internal
pullups for JTAG

+3V3
4k7 R15

3V3_STBY
On Carrier
On AMC

AMC_PS1_ND
AMC_PS0_ND

GND
On Carrier

PE0 2
PE1 3
PE2 4
PE3 5
USER_DEFINED_PE4 6 PE4
USER_DEFINED_PE5 7 PE5
USER_DEFINED_PE6 8 PE6
USER_DEFINED_PE7 9 PE7

150k R14

PD0 25 IPMB_SCL
PD1 26 IPMB_SDA
PD2 27 Handle
PD3 28
PD4 29 LOCAL_SCL
PD5 30 LOCAL_SDA
PD6 31
PD7 32

+3V3 +3V3 +3V3
R29 33k
R31 33k
R33 33k

330 R16
390k R17
GND GND

ATmega128L-8MU
U3
GND

+3V3
R11 10k
ENABLED

U2
SN74LVC06APWR
Reset-Circuit
+3V3

VCC 14
1A 1 1Y 2 nENABLE
2A 3 2Y 4
3A 5 3Y 6
4A 9 4Y 8
5A 11 5Y 10
6A 13 6Y 12
GND 7

GND

+3V3
C4 100nF
GND GND

ISP_RST

R19 330
R20 330
R21 330
SW2
PTS645VK83-2 LFS

+3V3
R22 12k
C7 100nF

D5 BAT46GWX
LOCAL_JTAG.TRST
Low=Reset

D6 DZ9F3V6S92-7
GND

Title: AMC Template
Size: A3 | Date: 2022-09-07 | Rev: 1.0
KiCad E.D.A. kicad 6.0.7 | Id: 4/9

5V @ 100mA

+12V   U4   +5V
          LM1117-5.0

          3 VI   VO 2

               GND

C9   C10
10uF   10uF

          GND

Debug power connector

+12V

                  +3V3
          1
          2
   J5   3
          4

          GND

Title: AMC Template

| Size: A3 | Date: 2022-09-07 | Rev: 1.0 |
| KiCad E.D.A. kicad 6.0.7 | | Id: 5/9 |

Addr 0x48 = 0b1001000

IC1
LM75AD,118

1	SDA	VCC	8
2	SCL	A0	7
3	OS	A1	6
4	GND	A2	5

SDA
SCL

+3V3

GND

GND

+3V3

C11
100nF

GND

Title: AMC Template

| Size: A3 | Date: 2022-09-07 | **Rev: 1.0** |
| KiCad E.D.A. kicad 6.0.7 | | Id: 6/9 |

If the DRC gives an error because of the Thermal Pad,
manually connect the pad in the Layout to GND

+3V3

+3V3

C12
100nF

GND

U5   AT24C512C

1 A0   VCC   SDA 5   SDA
2 A1   SCL 6   SCL
3 A2   GND WP 7

GND   GND   GND

I2C Address

8'hA0 -> 8'b1010_000(r/w)

7'h50 -> 7'b101_0000

Title: AMC Template

| Size: A3 | Date: 2022-09-07 | Rev: 1.0 |
| KiCad E.D.A. kicad 6.0.7 | | Id: 7/9 |

+3V3   SENSE
        voltage

+3V3

C13
100nF

GND

Internal 90k
pull-up in
TPS3808

U6

5 SENSE   VDD 6
3 MR   RESET 1   voltage low=low
4 CT   GND 2   LOW_VOLTAGE_POK
                            open collector
           TPS3808DBV   output

+3V3   R34
       51k

GND

GND

C_T = 50k pull-up -> 300 ms delay
TPS3808G33 -> Sense = 3.3 V -> Threshold = 3.07V

Title: AMC Template

Size: A3   Date: 2022-09-07   Rev: 1.0
KiCad E.D.A. kicad 6.0.7   Id: 8/9

AMC_USR_LED

Addr 0x3A = 0b011 1010

Green Green Green Green Green Green Green Green
+5V +5V +5V +5V +5V +5V +5V +5V

R35 R36 R37 R38 R39 R40 R41 R42
150 150 150 150 150 150 150 150

D7 D8 D9 D10 D11 D12 D13 D14
GRN GRN GRN GRN GRN GRN GRN GRN

+3V3

U1
PCF8574PW

SCL 2 SCL
SDA 4 SDA

+3V3
6 A0
7 A1
9 A2

P0 10
P1 11
P2 12
P3 14
P4 16
P5 17
P6 19
P7 20

1 INT

VDD 5

VSS 15

GND

C14
100nF

+3V3

GND

GND

Title: AMC Template

Size: A3 | Date: 2022-09-07 | Rev: 1.0
KiCad E.D.A. kicad 6.0.7 | Id: 9/9