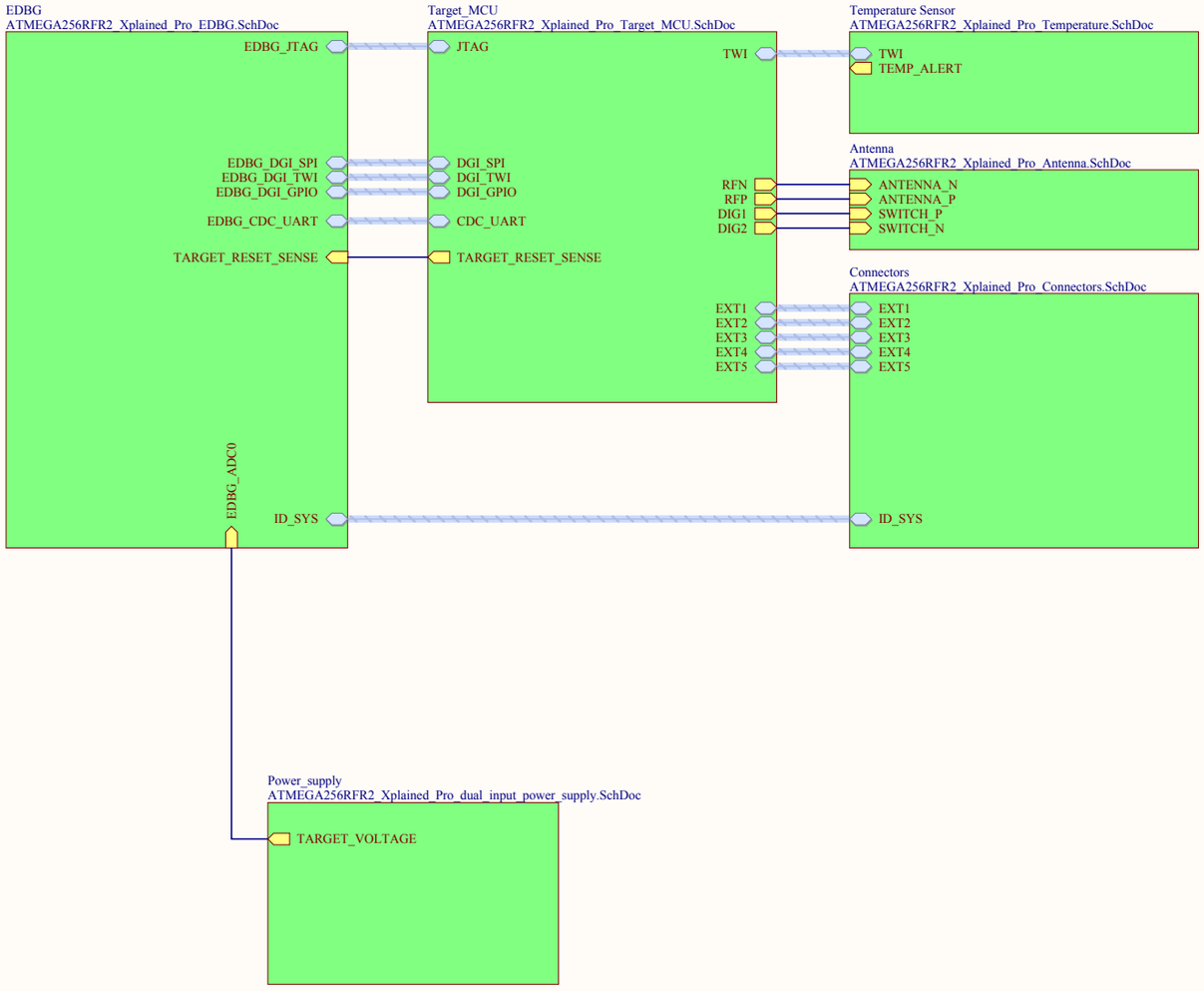

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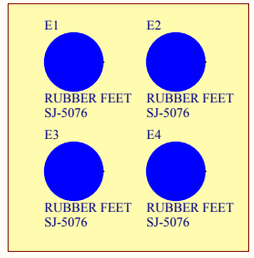
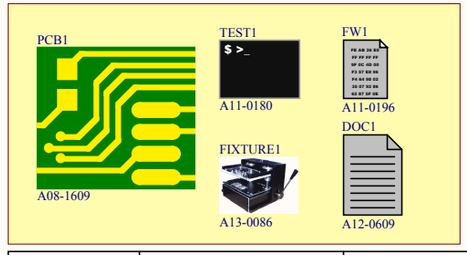


LABEL1

Product number/revision
Serial number

Label PCBA with MAC64 and FCC ID



ATMEL Norway	*		
Vestre Rosten 79	*		
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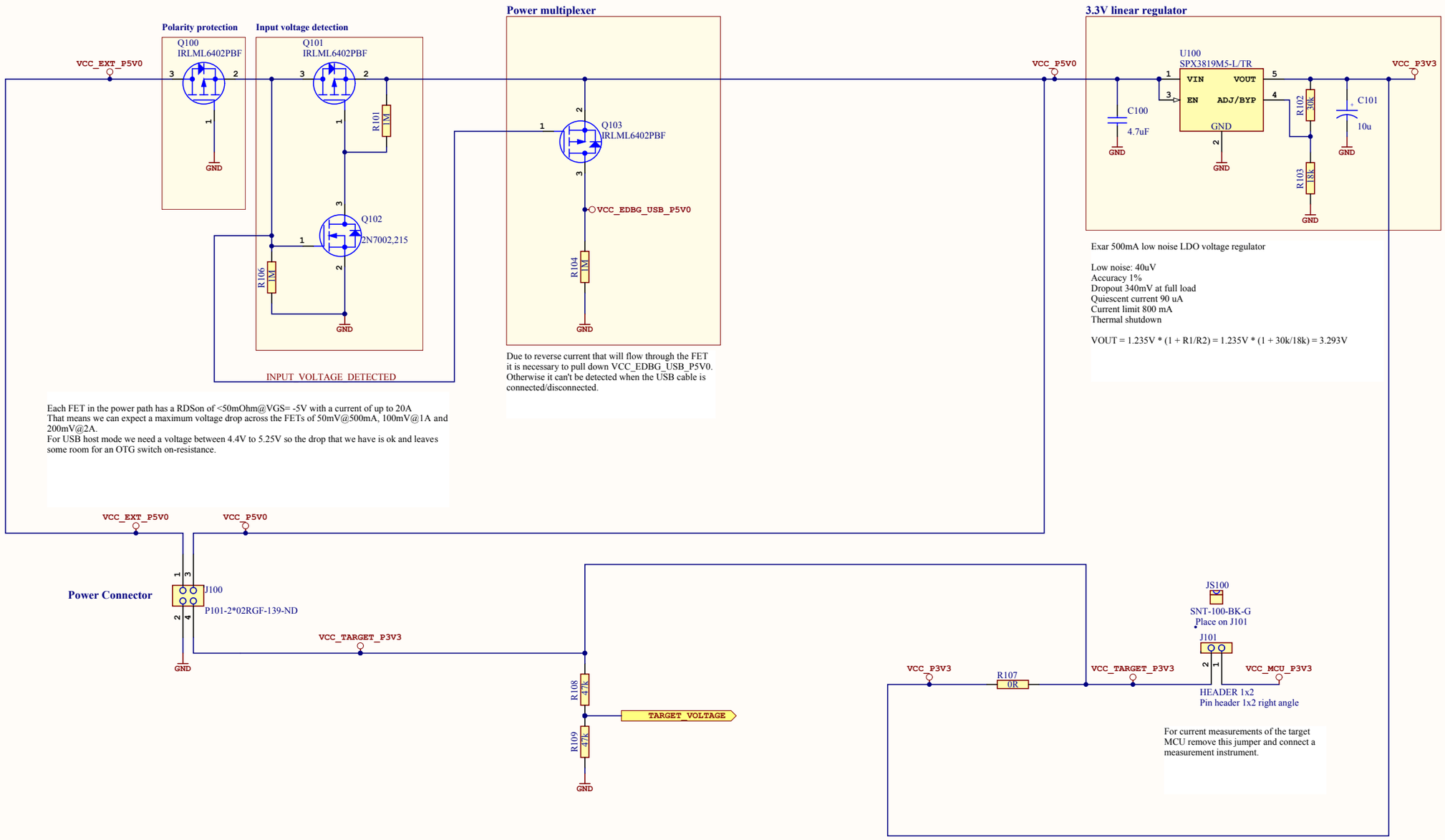
NORWAY			
Date:	2/26/2013	11:21:03 AM	PAGE: 1 of 7
Document number:	1		Revision: 3
TITLE: Top Level Schematics			
ATMEGA256RFR2_Xplained_Pro_TopLevel.SchDoc			



ATMEL Norway	*		
Vestre Rosten 79	*		
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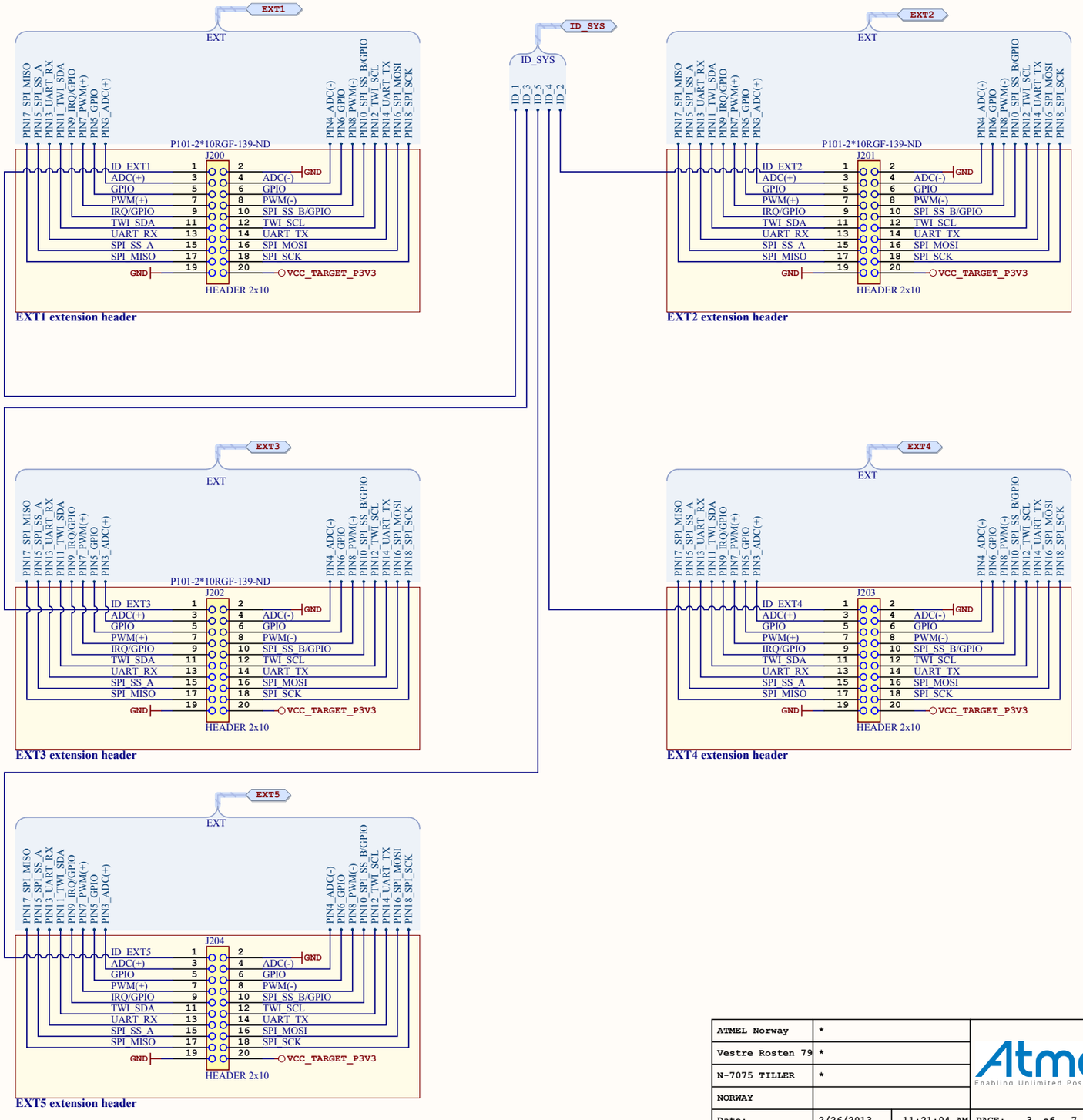
NORWAY			
Date:	2/26/2013	11:21:04 AM	PAGE: 2 of 7
Document number:	2		Revision: 3
TITLE: Power supply			
ATMEGA256RFR2_Xplained_Pro_dual_input_power_supply.SchDoc			



ATMEL Norway	*		Atmel Enabling Unlimited Possibilities
Vestre Rosten 79	*		
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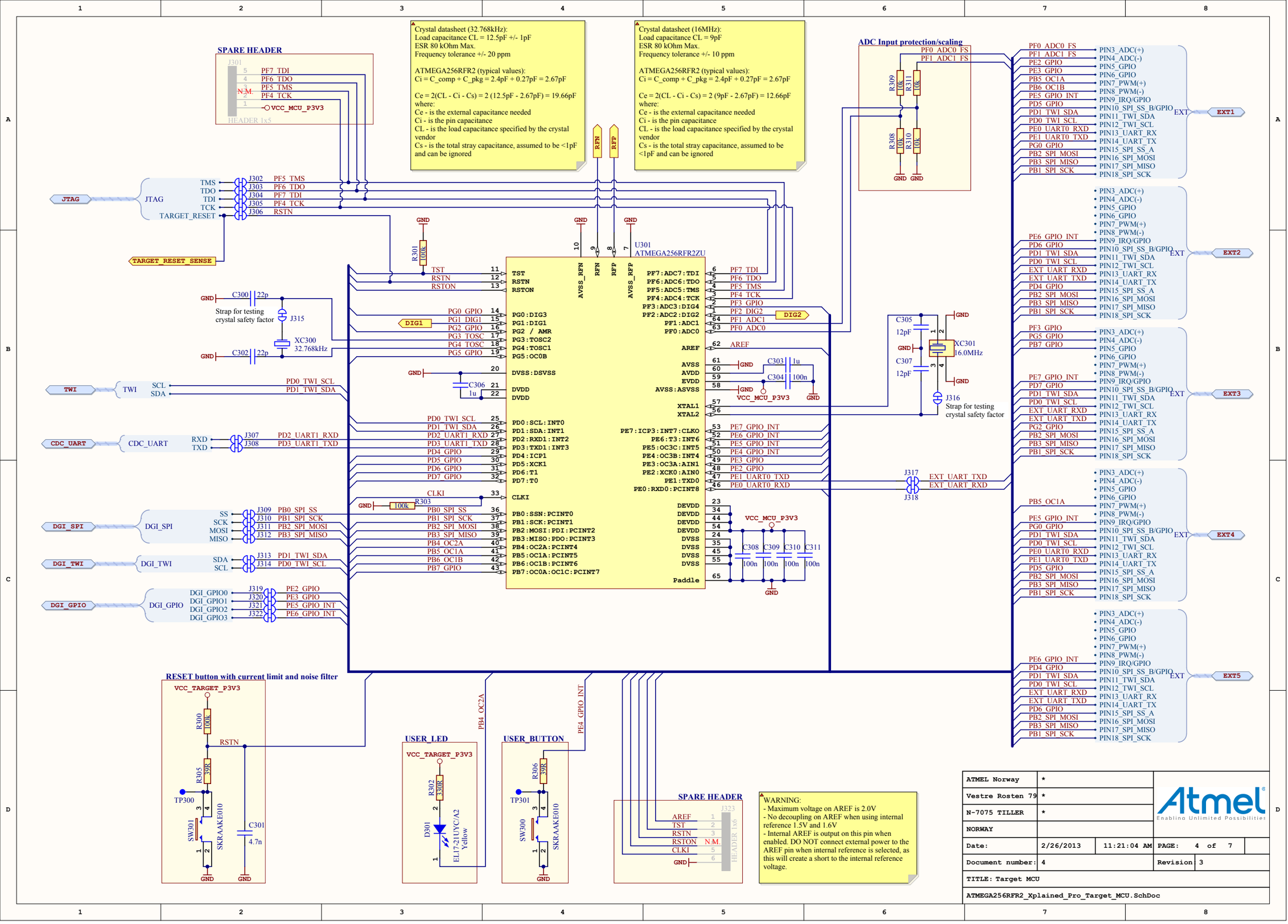
Date:	2/26/2013	11:21:04 AM	PAGE: 3 of 7
Document number:	3		Revision: 3
TITLE: Extension connectors			
ATMEGA256RFR2_Xplained_Pro_Connectors.SchDoc			


Crystal datasheet (32.768kHz):
Load capacitance CL = 12.5pF +/- 1pF
ESR 80 kOhm Max.
Frequency tolerance +/- 20 ppm
ATMEGA256RFR2 (typical values):
Ci = C_comp + C_pkg = 2.4pF + 0.27pF = 2.67pF
Ce = 2(CL - Ci - Cs) = 2 (12.5pF - 2.67pF) = 19.66pF
where:
Ce - is the external capacitance needed
Ci - is the pin capacitance
CL - is the load capacitance specified by the crystal vendor
Cs - is the total stray capacitance, assumed to be <1pF and can be ignored
Crystal datasheet (16MHz):
Load capacitance CL = 9pF
ESR 80 kOhm Max.
Frequency tolerance +/- 10 ppm
ATMEGA256RFR2 (typical values):
Ci = C_comp + C_pkg = 2.4pF + 0.27pF = 2.67pF
Ce = 2(CL - Ci - Cs) = 2 (9pF - 2.67pF) = 12.66pF
where:
Ce - is the external capacitance needed
Ci - is the pin capacitance
CL - is the load capacitance specified by the crystal vendor
Cs - is the total stray capacitance, assumed to be <1pF and can be ignored
SPARE HEADER
J301
PF7_TDI
PF6_TDO
PF5_TMS
PF4_TCK
VCC_MCU_P3V3
HEADER 1x5
ADC Input protection/scaling
PF0_ADC0_FS
PF1_ADC1_FS
R309 10k
R311 10k
R308 10k
R310 10k
GND
JTAG
TMS
TDO
TDI
TCK
TARGET_RESET
J302 PF5_TMS
J303 PF6_TDO
J304 PF7_TDI
J305 PF4_TCK
J306 RSTN
TARGET_RESET_SENSE
R301 100k
TST
RSTN
RSTON
U301
ATMEGA256RFR2ZU
AVSS_RFN
RFN
RFP
AVSS_RFP
PF7:ADC7:TDI
PF6:ADC6:TDO
PF5:ADC5:TMS
PF4:ADC4:TCK
PF3:ADC3:DIG4
PF2:ADC2:DIG2
PF1:ADC1
PF0:ADC0
AREF
AVSS
AVDD
EVDD
AVSS:ASVSS
XTAL1
XTAL2
PG0:DIG3
PG1:DIG1
PG2 / AMR
PG3:TOSC2
PG4:TOSC1
PG5:OC0B
DVSS:DSVSS
DVDD
DVDD
PD0:SCL:INT0
PD1:SDA:INT1
PD2:RXD1:INT2
PD3:TXD1:INT3
PD4:ICP1
PD5:XCK1
PD6:T1
PD7:T0
CLKI
PB0:SSN:PCINT0
PB1:SCK:PCINT1
PB2:MOSI:PDI:PCINT2
PB3:MISO:PDO:PCINT3
PB4:OC2A:PCINT4
PB5:OC1A:PCINT5
PB6:OC1B:PCINT6
PB7:OC0A:OC1C:PCINT7
PE7:ICP3:INT7:CLKO
PE6:T3:INT6
PE5:OC3C:INT5
PE4:OC3B:INT4
PE3:OC3A:AIN1
PE2:XCK0:AIN0
PE1:TXD0
PE0:RXD0:PCINT8
DEVDD
DVSS
Paddle
DIG1
DIG2
C300 22p
C302 22p
Strap for testing crystal safety factor
J315
XC300 32.768kHz
C306 1u
C303 1u
C304 100n
C305 12pF
C307 12pF
XC301 16.0MHz
J316
Strap for testing crystal safety factor
TWI
SCL
SDA
PD0_TWI_SCL
PD1_TWI_SDA
CDC_UART
RXD
TXD
J307
J308
PD2_UART1_RXD
PD3_UART1_TXD
J317
J318
EXT_UART_TXD
EXT_UART_RXD
DGI_SPI
SS
SCK
MOSI
MISO
J309 PB0_SPI_SS
J310 PB1_SPI_SCK
J311 PB2_SPI_MOSI
J312 PB3_SPI_MISO
CLKI
R303 100k
DGI_TWI
SDA
SCL
J313 PD1_TWI_SDA
J314 PD0_TWI_SCL
DGI_GPIO
DGI_GPIO0
DGI_GPIO1
DGI_GPIO2
DGI_GPIO3
J319 PE2_GPIO
J320 PE3_GPIO
J321 PE5_GPIO_INT
J322 PE6_GPIO_INT
C308 100n
C309 100n
C310 100n
C311 100n
VCC_MCU_P3V3
EXT
EXT1
EXT2
EXT3
EXT4
EXT5
PIN3_ADC(+)
PIN4_ADC(-)
PIN5_GPIO
PIN6_GPIO
PIN7_PWM(+)
PIN8_PWM(-)
PIN9_IRQ/GPIO
PIN10_SPI_SS_B/GPIO
PIN11_TWI_SDA
PIN12_TWI_SCL
PIN13_UART_RX
PIN14_UART_TX
PIN15_SPI_SS_A
PIN16_SPI_MOSI
PIN17_SPI_MISO
PIN18_SPI_SCK
RESET button with current limit and noise filter
VCC_TARGET_P3V3
R300 100k
RSTN
R305 39R
TP300
SW301
SKRAAKE010
C301 4.7n
USER_LED
R302 330R
D301
EL17-21UYC/A2
Yellow
PB4_OC2A
USER_BUTTON
PE4_GPIO_INT
R306 39R
TP301
SW300
SKRAAKE010
SPARE HEADER
J323
AREF
TST
RSTN
RSTON
CLKI
GND
HEADER 1x6
WARNING:
- Maximum voltage on AREF is 2.0V
- No decoupling on AREF when using internal reference 1.5V and 1.6V
- Internal AREF is output on this pin when enabled. DO NOT connect external power to the AREF pin when internal reference is selected, as this will create a short to the internal reference voltage.
ATMEL Norway
Vestre Rosten 79
N-7075 TILLER
NORWAY
Date: 2/26/2013 11:21:04 AM
PAGE: 4 of 7
Document number: 4
Revision: 3
TITLE: Target MCU
ATMEGA256RFR2_Xplained_Pro_Target_MCU.SchDoc
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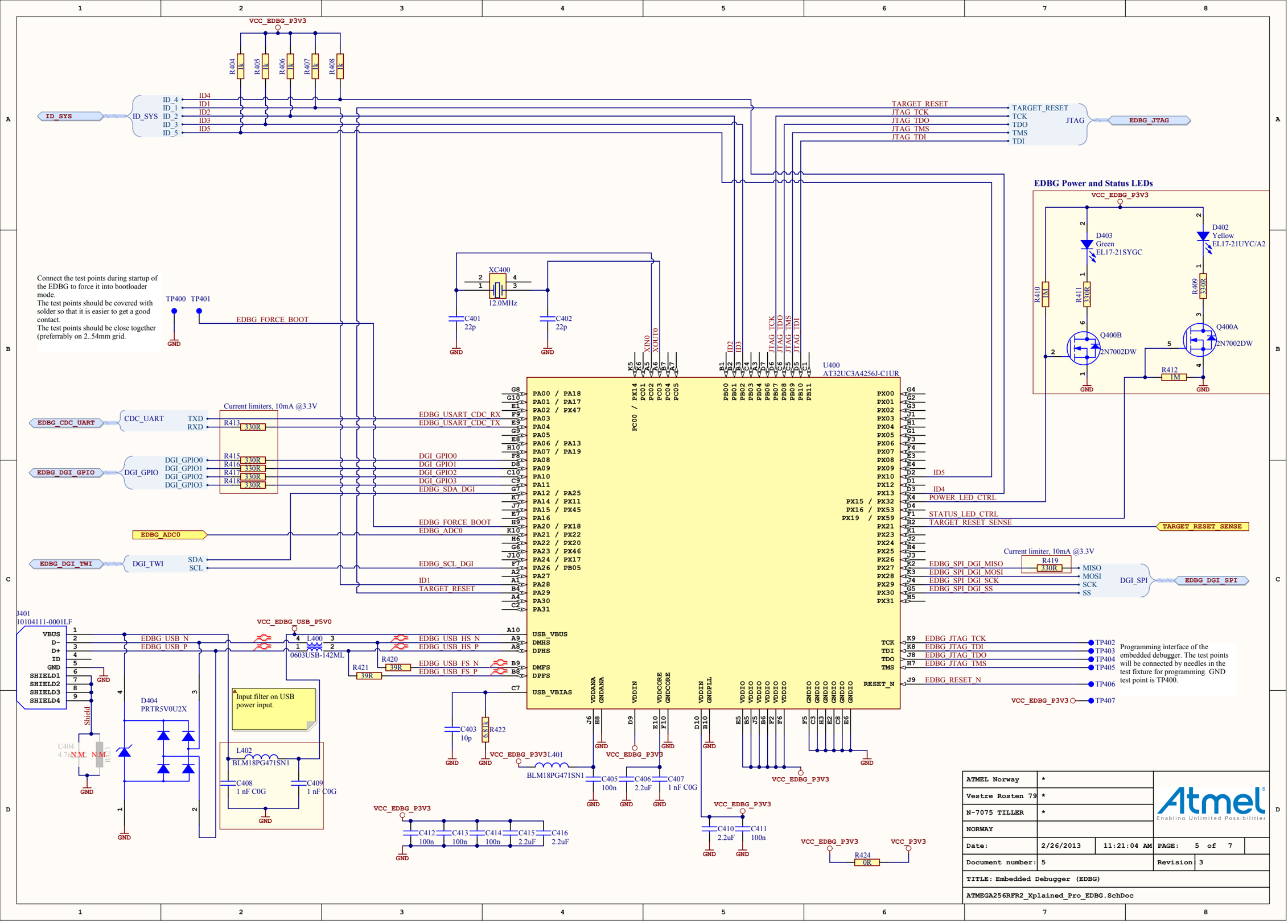
Enabling Unlimited Possibilities



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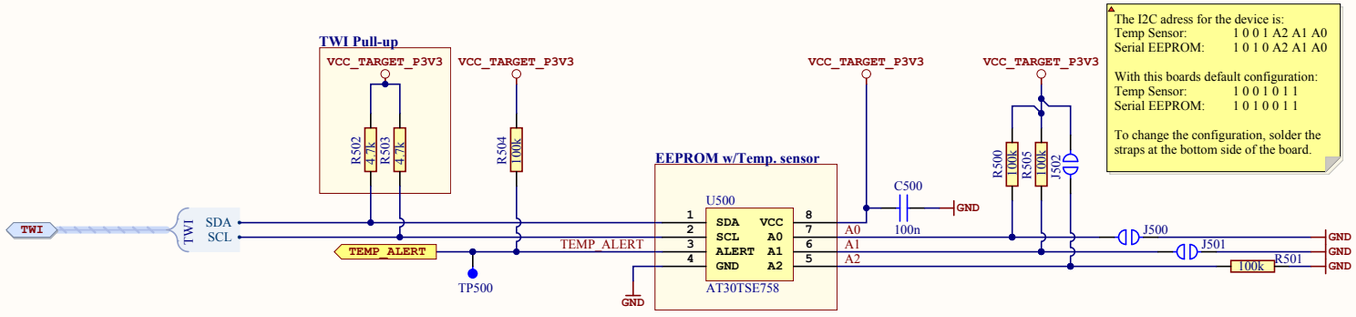
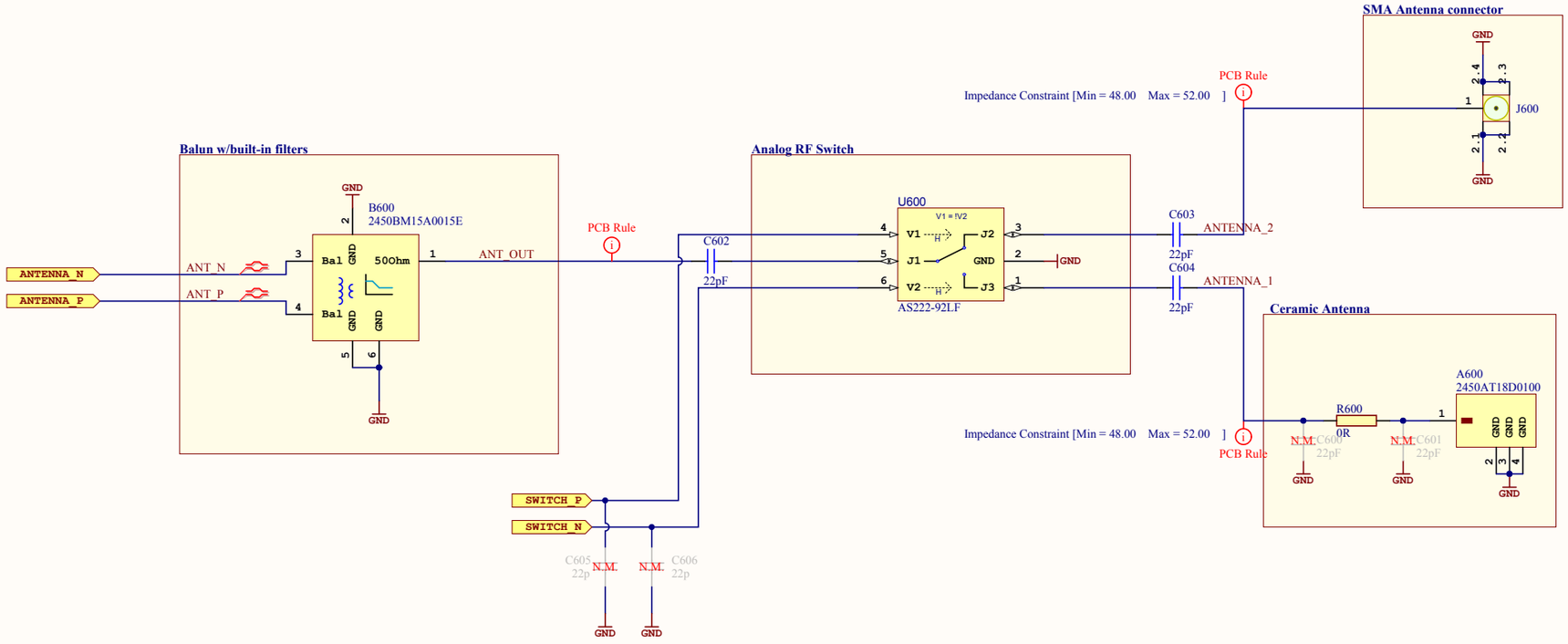
NORWAY			
Date:	2/26/2013	11:21:04 AM	PAGE: 5 of 7
Document number:	5		Revision: 3
TITLE: Embedded Debugger (EDBG)			
ATMEGA256RFR2_Xplained_Pro_EDBG.SchDoc			



ATMEL Norway	*		
Vestre Rosten 79	*		
N-7075 TILLER	*		
NORWAY			
Date:	2/26/2013	11:21:05 AM	PAGE: 6 of 7
Document number:	6		Revision: 3
TITLE: Temperature Sensor			
ATMEGA256RFR2_Xplained_Pro_Temperature.SchDoc			



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Vestre Rosten 79	*		
N-7075 TILLER	*		
NORWAY			
Date:	2/26/2013	11:21:05 AM	PAGE: 7 of 7
Document number:	7		Revision: 3
TITLE: Antenna			
ATMEGA256RFR2_Xplained_Pro_Antenna.SchDoc			