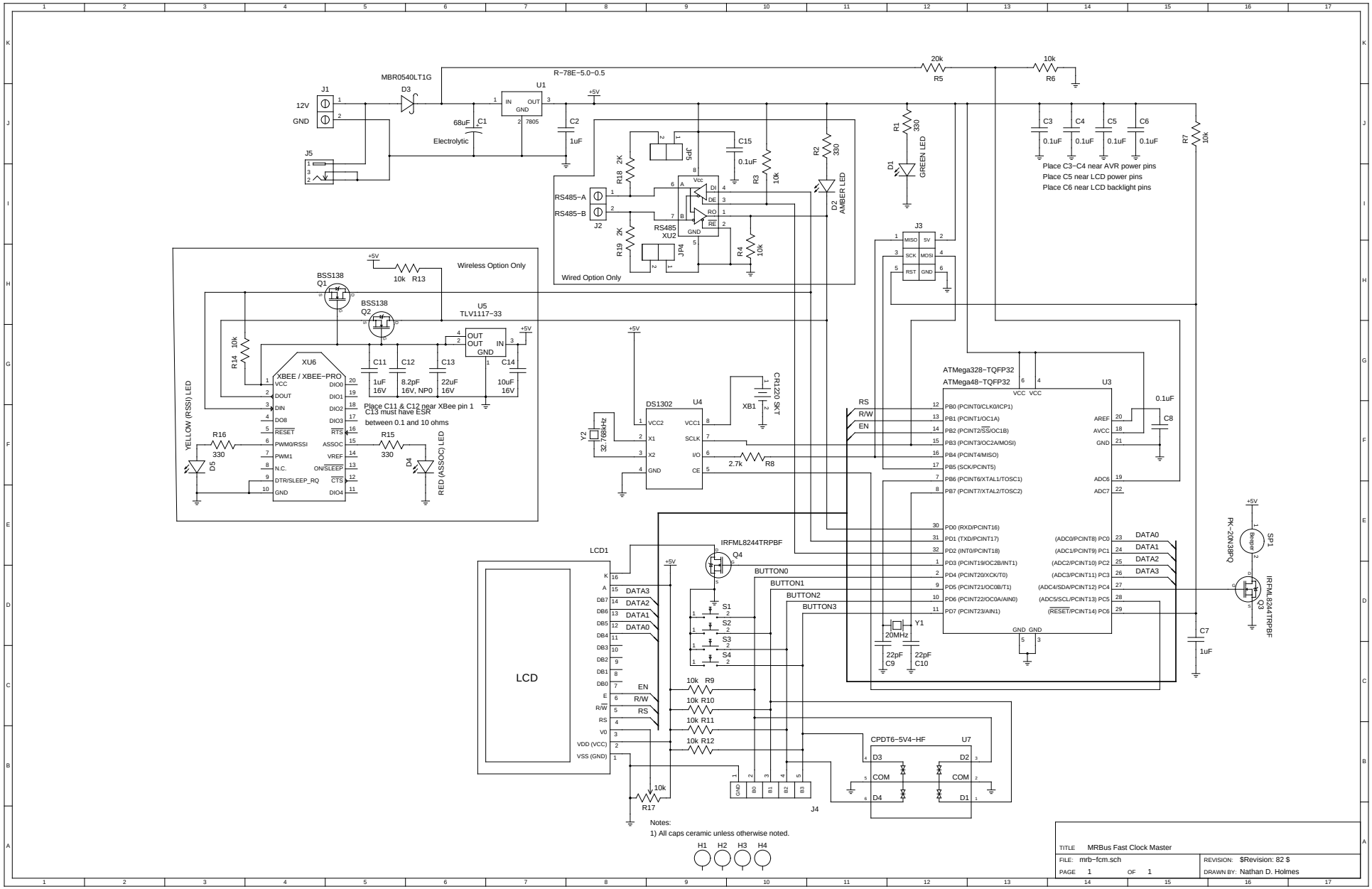
R-78E-5.0-0.5
MBR0540LT1G
D3
J1
12V
GND
J5
U1
IN
OUT
GND
7805
68uF
C1
Electrolytic
C2
1uF
+5V
20k
R5
10k
R6
R1
330
D1
GREEN LED
C3
C4
C5
C6
0.1uF
R7
10k
Place C3-C4 near AVR power pins
Place C5 near LCD power pins
Place C6 near LCD backlight pins
JP5
C15
0.1uF
R18
2K
R3
10k
R2
330
D2
AMBER LED
RS485-A
RS485-B
J2
RS485
XU2
Vcc
DI
DE
RO
RE
GND
JP4
R19
2K
R4
10k
Wired Option Only
J3
MISO
5V
SCK
MOSI
RST
GND
Wireless Option Only
BSS138
Q1
BSS138
Q2
10k
R13
U5
TLV1117-33
OUT
OUT
IN
GND
R14
10k
XU6
XBEE / XBEE-PRO
VCC
DOUT
DIN
DO8
RESET
PWM0/RSSI
PWM1
N.C.
DTR/SLEEP_RQ
GND
DIO0
DIO1
DIO2
DIO3
RTS
ASSOC
VREF
ON/SLEEP
CTS
DIO4
C11
1uF
16V
C12
8.2pF
16V, NP0
C13
22uF
16V
C14
10uF
16V
Place C11 & C12 near XBee pin 1
C13 must have ESR
between 0.1 and 10 ohms
YELLOW (RSSI) LED
R16
330
D5
R15
330
D4
RED (ASSOC) LED
DS1302
U4
VCC2
X1
X2
GND
VCC1
SCLK
I/O
CE
Y2
32.768KHz
CR1220 SKT
XB1
2.7k
R8
ATMega328-TQFP32
ATMega48-TQFP32
U3
VCC
VCC
RS
R/W
EN
PB0 (PCINT0/CLK0/ICP1)
PB1 (PCINT1/OC1A)
PB2 (PCINT2/SS/OC1B)
PB3 (PCINT3/OC2A/MOSI)
PB4 (PCINT4/MISO)
PB5 (SCK/PCINT5)
PB6 (PCINT6/XTAL1/TOSC1)
PB7 (PCINT7/XTAL2/TOSC2)
PD0 (RXD/PCINT16)
PD1 (TXD/PCINT17)
PD2 (INT0/PCINT18)
PD3 (PCINT19/OC2B/INT1)
PD4 (PCINT20/XCK/T0)
PD5 (PCINT21/OC0B/T1)
PD6 (PCINT22/OC0A/AIN0)
PD7 (PCINT23/AIN1)
AREF
AVCC
GND
ADC6
ADC7
0.1uF
C8
(ADC0/PCINT8) PC0
(ADC1/PCINT9) PC1
(ADC2/PCINT10) PC2
(ADC3/PCINT11) PC3
(ADC4/SDA/PCINT12) PC4
(ADC5/SCL/PCINT13) PC5
(RESET/PCINT14) PC6
DATA0
DATA1
DATA2
DATA3
GND GND
Y1
20MHz
22pF
C9
22pF
C10
C7
1uF
SP1
PK-20N38PQ
IRFML8244TRPBF
Q3
IRFML8244TRPBF
Q4
BUTTON0
BUTTON1
BUTTON2
BUTTON3
S1
S2
S3
S4
LCD1
LCD
K
A
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
E
R/W
RS
V0
VDD (VCC)
VSS (GND)
DATA3
DATA2
DATA1
DATA0
EN
R/W
RS
10k R9
10k R10
10k R11
10k R12
10k
R17
CPDT6-5V4-HF
U7
D3
D2
COM
COM
D4
D1
GND
B0
B1
B2
B3
J4
Notes:
1) All caps ceramic unless otherwise noted.
H1
H2
H3
H4
TITLE MRBus Fast Clock Master
FILE: mrb-fcm.sch
PAGE 1 OF 1
REVISION: $Revision: 82 $
DRAWN BY: Nathan D. Holmes