RX-62N Multi-Breakout Board Options

The RX-62N Multi-Breakout Board is designed to be a low-cost prototyping tool designed for hand-assembly. Using this document and the related drawings, the board can be assembled with standard soldering tools and techniques.

The RX-62N Multi-Breakout Board can be built in many ways depending on which options you need, which programmers/emulators you'll be using, and how you want to power the board. You can also populate any RX-621 or RX-62N MCU chip in either the 100 or 144 pin TQFP packages. The RX-62T is *not* compatible.

Note that the LEDS P74 and P75 do not connect to any pin on the 100-pin package; if you install a 100-pin RX chip, there's no reason to install the LEDS, unless you want to jumper them to other pins via the headers.

Assembly Notes: The two diodes D1 and D2 do not have polarity marks on the initial run of boards. The mark is towards the USB connectors, as shown in the design files and PDF drawings. The mounting holes are sized for #4 screws.

Cables			Power	Parts Populated					OS	Notes
E1	gRX	USB		E1	JP	gRX	LDO	USB		
Y	N	O	E1	Y	O	N	N	O		Power, programming, debug all from E1. Optional power from other source via headers.
Y	N	Y	USB	Y	O	N	Y	Y		Power from USB, programming, debug from E1
O	N	Y	USB	O	Y	N	Y	Y		Power from USB, programming over USB via FDT or rxusb; manual jumper/reset
N	Y	Y	USB	O	Y	Y	Y	Y		Power from USB, programming over USB via FDT or rxusb; manual jumper/reset, serial console via terminal emulator
N	Y	N	gRX	O	R	Y	Y	O		Must install at least the RESET_GRX header, set for GRX. Program via gRX protocol (serial), serial console.
N	Y	Y	gRX	O	R	Y	Y	Y		Must install at least the RESET_GRX header, set for GRX. Program via USB protocol under gRX control, serial console.

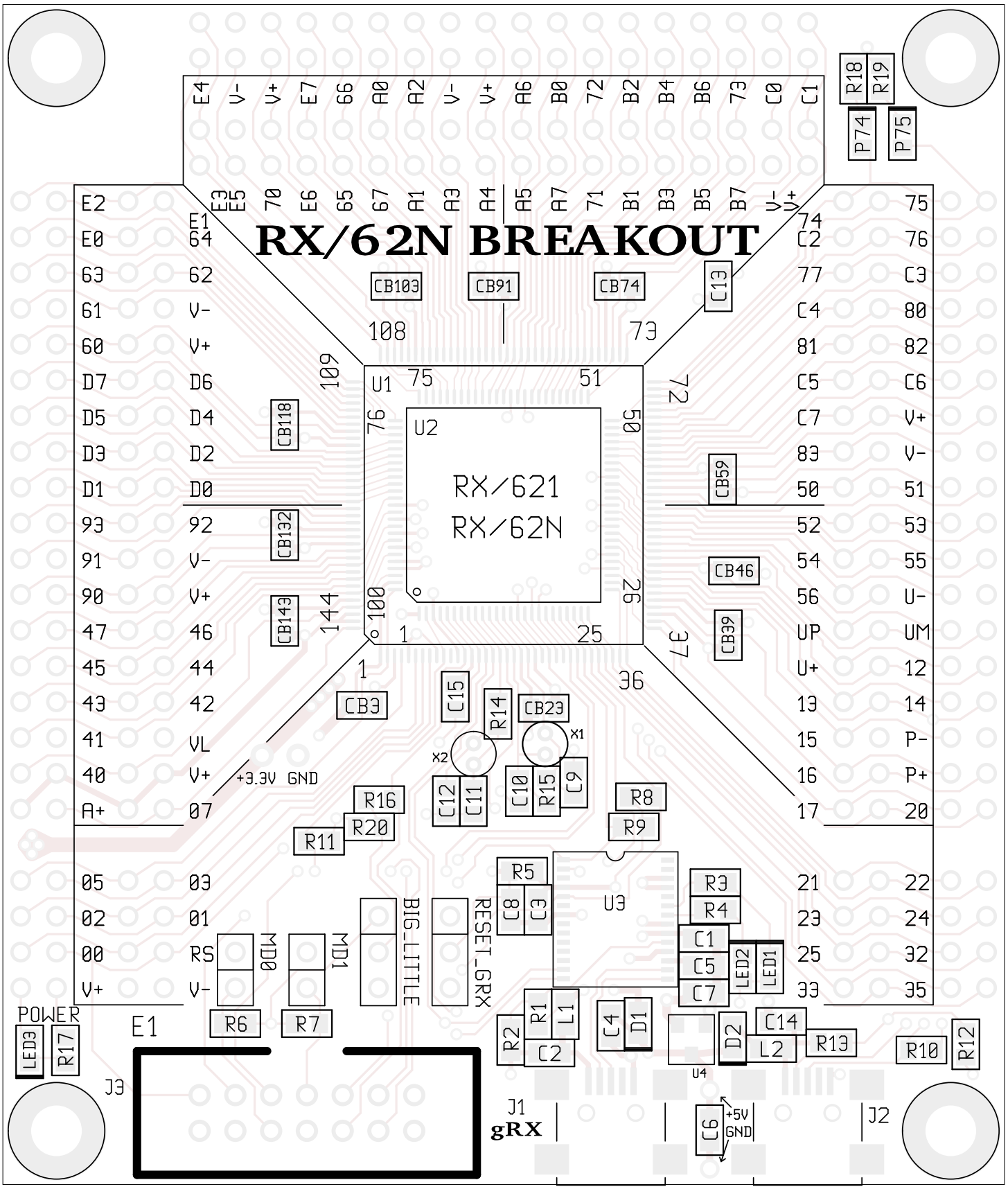
Notes:
JP = configuraton jumpers (MD0, MD1, RESET_GRX, BIG_LITTLE)
gRX = FT232R chip (U3) and related circuitry, see schematics
LDO = 3.3v low-dropout regulator (U4) and related circuitry
USB = RX device USB and related circuitry
O = optional, R = at least RESET_GRX installed

For further help, please see the product web site at

www.delorie.com/rx62n-breakout

or join the RX discussion groups at

www.RenesasRulz.com

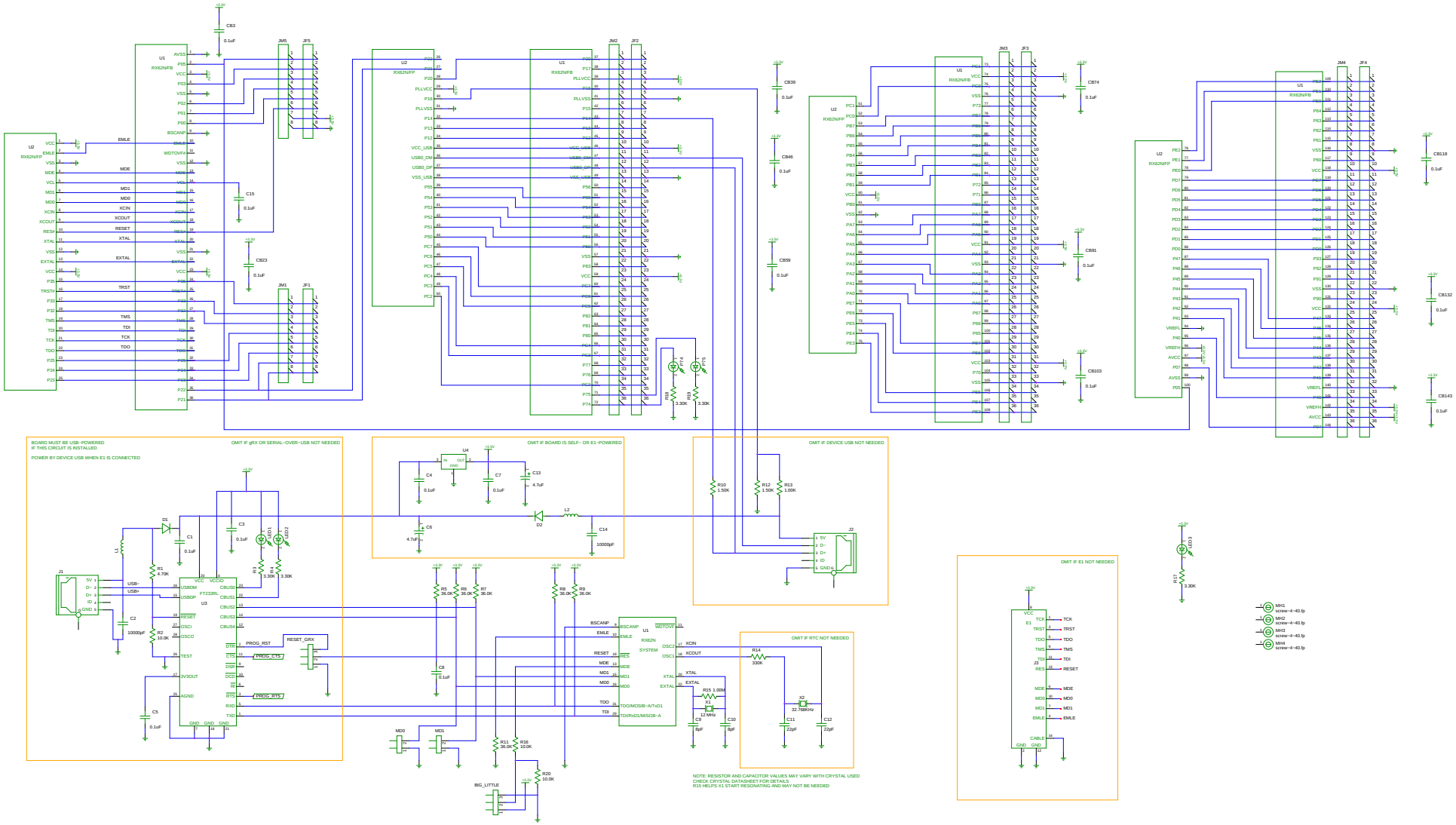

RX/62N BREAKOUT
RX/621
RX/62N
U1
U2
U3
U4
J1
gRX
J2
J3
E1
POWER
LED3
R17
R6
R7
MD0
MD1
BIG_LITTLE
RESET_GRX
+3.3V GND
+5V
GND
X1
X2
P74
P75
R18
R19
C13
CB103
CB91
CB74
CB118
CB132
CB143
CB59
CB46
CB39
CB23
CB3
C15
R14
C12
C11
C10
R15
C9
R16
R20
R11
R8
R9
R5
C8
C3
R3
R4
C1
C5
C7
LED2
LED1
R1
L1
R2
C2
C4
D1
D2
C14
L2
R13
R10
R12
C6

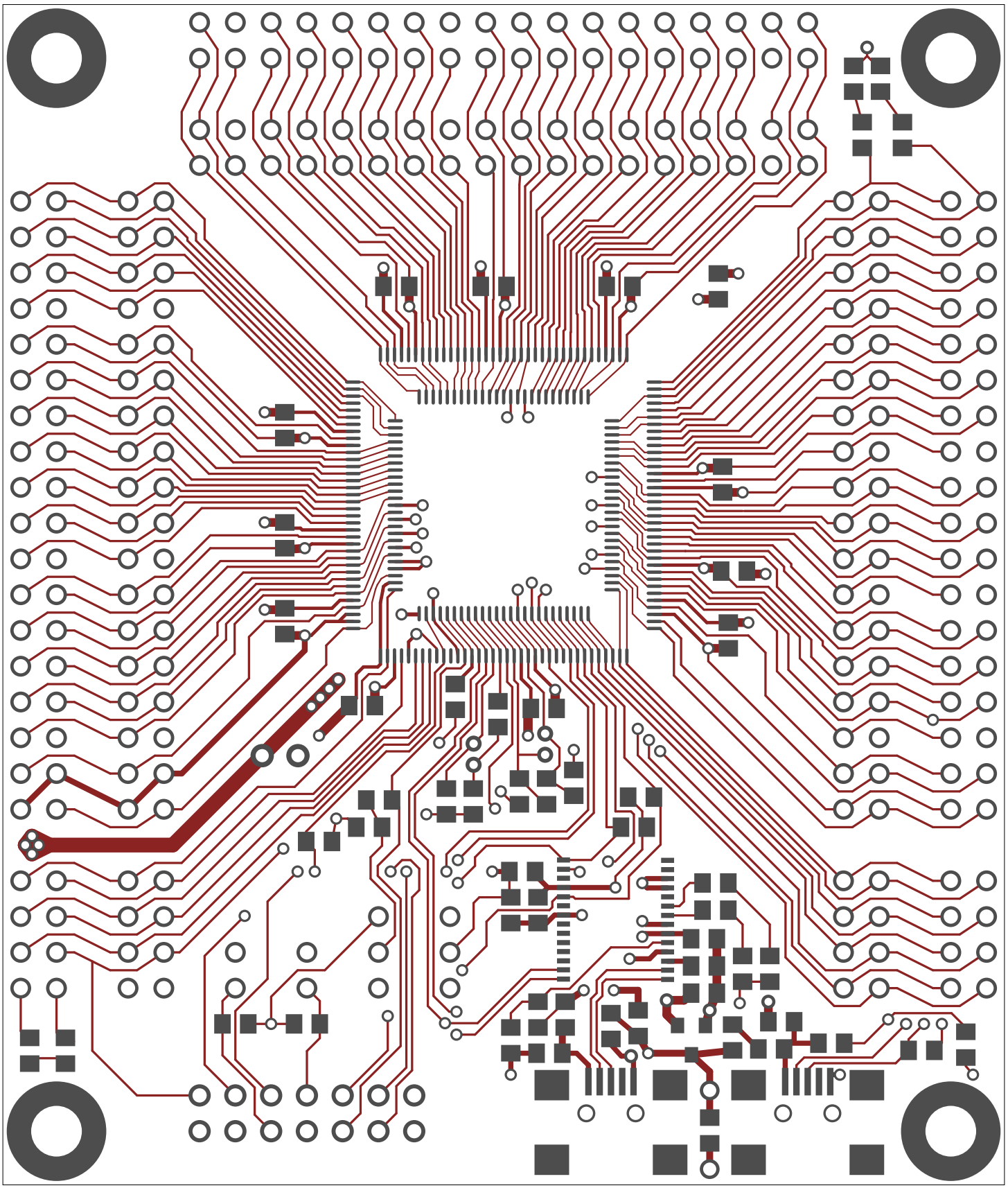
RX62N Breakout, 0603

PartNo	Value	Reference
399-1053-1-ND	22pF	C11, C12
399-1091-1-ND	10000pF	C14, C2
399-1096-1-ND	0.1uF	C1, C15, C3, C4, C5, C7, C8, CB103, CB118, CB132, CB143, CB23, CB3, CB39, CB46, CB59, CB74, CB91
399-3482-1-ND	4.7uF	C13
399-5503-1-ND	4.7uF	C6
3M9447-ND		MD0, MD1
3M9448-ND		BIG_LITTLE, RESET_GRX
445-2186-1-ND	60R100M	L1, L2
445-5043-1-ND	8pF	C10, C9
475-2512-1-ND		LED1, LED2, LED3, P74, P75
535-9034-ND	32.768KHz	X2
641-1285-1-ND		D1, D2
768-1007-1-ND	FT232R	U3
H2959CT-ND		J1, J2
MCP1700T3302ETTCT-ND		U4
RHM1.00KHCT-ND	1.00K	R13
RHM1.00MHCT-ND	1.00M	R15
RHM1.50KHCT-ND	1.50K	R10, R12
RHM10.0KHCT-ND	10.0K	R16, R2, R20
RHM3.30KHCT-ND	3.30K	R17, R18, R19, R3, R4
RHM330KHCT-ND	330K	R14
RHM36.0KHCT-ND	36.0K	R11, R5, R6, R7, R8, R9
RHM4.70KHCT-ND	4.70K	R1
S9170-ND		J3
XC955-ND	12 MHz	X1

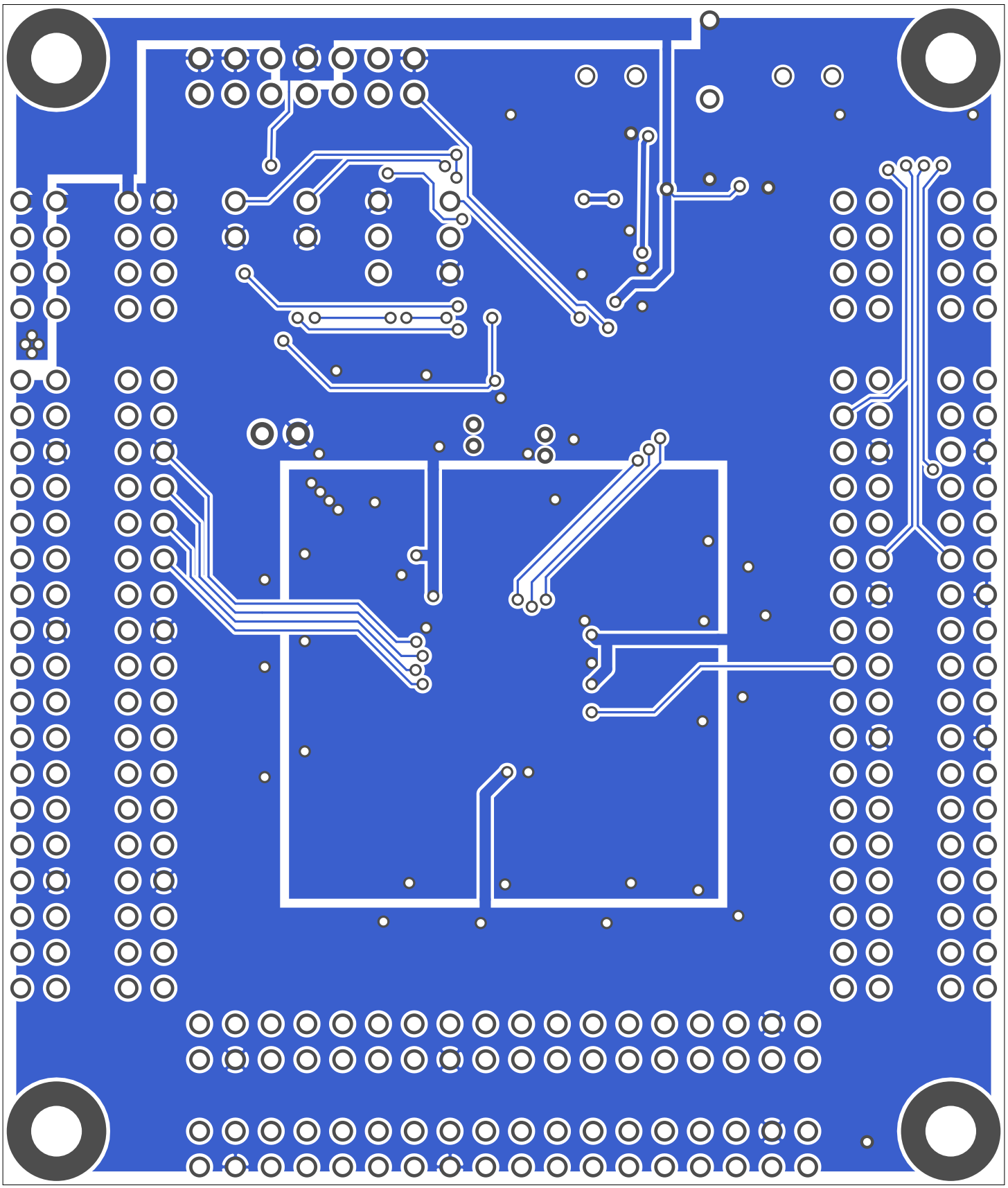
RX62N Breakout, 0805

PartNo	Value	Reference
311-1097-1-ND	8pF	C10, C9
399-1113-1-ND	22pF	C11, C12
399-1158-1-ND	10000pF	C14, C2
399-1168-1-ND	0.1uF	C1, C15, C3, C4, C5, C7, C8, CB103, CB118, CB132, CB143, CB23, CB3, CB39, CB46, CB59, CB74, CB91
399-3133-1-ND	4.7uF	C13, C6
3M9447-ND		MD0, MD1
3M9448-ND		BIG_LITTLE, RESET_GRX
445-2204-1-ND	60R100M	L1, L2
475-1278-1-ND		LED1, LED2, LED3, P74, P75
535-9034-ND	32.768KHz	X2
641-1285-1-ND		D1, D2
768-1007-1-ND	FT232R	U3
H2959CT-ND		J1, J2
MCP1700T3302ETTCT-ND		U4
RHM1.00KCRCT-ND	1.00K	R13
RHM1.00MCRCT-ND	1.00M	R15
RHM1.50KCRCT-ND	1.50K	R10, R12
RHM10.0KCRCT-ND	10.0K	R16, R2, R20
RHM3.30KCRCT-ND	3.30K	R17, R18, R19, R3, R4
RHM330KCRCT-ND	330K	R14
RHM36.0KCRCT-ND	36.0K	R11, R5, R6, R7, R8, R9
RHM4.70KCRCT-ND	4.70K	R1
S9170-ND		J3
XC955-ND	12 MHz	X1


BOARD MUST BE USB-POWERED
IF THIS CIRCUIT IS INSTALLED
POWER BY DEVICE USB WHEN E1 IS CONNECTED
OMIT IF qRX OR SERIAL-OVER-USB NOT NEEDED
OMIT IF BOARD IS SELF- OR E1-POWERED
OMIT IF DEVICE USB NOT NEEDED
OMIT IF E1 NOT NEEDED
OMIT IF RTC NOT NEEDED
NOTE: RESISTOR AND CAPACITOR VALUES MAY VARY WITH CRYSTAL USED
CHECK CRYSTAL DATASHEET FOR DETAILS
R15 HELPS X1 START RESONATING AND MAY NOT BE NEEDED
RESET_GRX
PROG_RST
PROG_CTS
PROG_RTS
BIG_LITTLE



front, not to scale
rx62n-breakout.pcb



back (mirrored), not to scale
rx62n-breakout.pcb