P1
RCBus 40-pin Header

A15 1
A14 2
A13 3
A12 4
A11 5
A10 6
A9 7
A8 8
A7 9 A7
A6 10 A6
A5 11 A5
A4 12 A4
A3 13 A3
A2 14 A2
A1 15 A1
A0 16 A0
GND 17 GND
5V 18 +5V
/M1 19
/RESET 20 /RESET
CLK 21
/INT 22
/MREQ 23
/WR 24 /WR
/RD 25 /RD
/IORQ 26 /IORQ
D0 27 D0
D1 28 D1
D2 29 D2
D3 30 D3
D4 31 D4
D5 32 D5
D6 33 D6
D7 34 D7
TX 35
RX 36
p37 37
p38 38
p39 39
p40 40

+5V 14 U4 74HCT32 7 U4.5
+5V 14 U3 74HCT125 7 U3.5

74HCT32 U4.3 9 10 8
74HCT32 U4.4 12 13 11

U2 74HCT273
+5V 20 VCC
D1 18 D7 Q7 19 OUT1 (D1)
D3 17 D6 Q6 16 OUT3 (D3)
D5 14 D5 Q5 15 /RTC_WE (D5)
D7 13 D4 Q4 12 RTC_DOUT (D7)
D6 8 D3 Q3 9 RTC_SCLK (D6)
D4 7 D2 Q2 6 RTC_CE (D4)
D2 4 D1 Q1 5 OUT2 (D2)
D0 3 D0 Q0 2 OUT0 (D0)
/RESET 1 /CLR
GND 10 GND
CLOCK 11

Output bits
D7 -> RTC_DOUT
D6 -> RTC_SCLK
D5 -> RTC_WE
D4 -> RTC_CE
D3 -> OUT3
D2 -> OUT2
D1 -> OUT1
D0 -> OUT0

+5V
C1 100nF
C2 100nF
C3 100nF
C4 100nF
C5 100nF

74HCT125 U3.4 1 2 3

U5 DS1302
SCLK 7 X1 2
IO 6
CE 5 X2 3
VCC1 8
VCC2 1 GND 4
X1 32.768kHz
+5V
B1 BATTERY CR2032

Real Time Clock using a DS1302

/WR 4
/CE 5
74HCT32 U4.2 6 /IOWR
74HCT32 U4.1 1 2 3 /IORD
/RD

Input bits
D0 -> RTC_DIN
D4 -> IN4
D5 -> IN5

U1 74HCT688
+5V 20 VCC
A6 17 P7 Q7 18 PA6
A3 15 P6 Q6 16 PA3
A2 13 P5 Q5 14 PA2
A0 11 P4 Q4 12 PA0
A1 8 P3 Q3 9 PA1
A4 6 P2 Q2 7 PA4
A5 4 P1 Q1 5 PA5
A7 2 P0 Q0 3 PA7
/IORQ 1 /OE
/ P=Q 19
10 GND

Address decoding

+5V
JP1 Address jumpers
'A0 2 1
'A1 4 3
'A2 6 5
'A3 8 7
'A4 10 9
'A5 12 11
'A6 14 13
'A7 16 15
RN1 8x100k

D0 RTC_DIN 11 U3.3 12 SDATA 74HCT125 13
D4 IN4 8 U3.2 9 IN4 74HCT125 10
D5 IN5 6 U3.1 5 IN5 74HCT125 4

+5V
OUT0 OUT1 OUT2 OUT3 IN4 IN5
1 5V
2 OUT0
3 OUT1
4 0V
5 OUT2
6 OUT3
7 5V
8 IN4
9 IN5
10 GND
P2 Digital I/O
R1 10k
R2 10k

P2 provides some general purpose digital I/O signals which are not used by the RTC.

JP1 allows the module to be set to any single I/O address from 0 to 255 (0x00 to 0xFF).
Fit jumper shunt(s) to bit position(s) 0 to 7 to set the required address.
When a jumper shunt is fitted the address bit must be a 1 (high) to enable this module.

| | | |
|---|---|---|
| Title: | SC606: RTC module for RCBus 40 pin | Schematic: v1.0.0 |
| Date: | 2024-09-12 Created: 2024-09-08 | Sheet: 1 of 1 |
| Designer: | Stephen C Cousins, Small Computer Central, www.scc.me.uk | |