SmartCart: Controls, Indicators and Interconnects

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LEDS
1. LED (D0), Level Shifter (~invalid) signal: High when valid signal on RS232 receiver
2. LED (D1), Processor reset output signal: High when processor not in reset state
3. LED (D2), RFID Reader output. High when there is an error: ‘OUTPUTERR’
4. LED (D3), RFID Reader output. High when there is no error: ‘OUTPUTOK’

SWITCHES
5. Switch (S0), Bootloader for processor (right active, left grounded) [LEFT TO USE BOOTLOADER]
6. Switch (S0), ~Reset for processor and TFT connector (right active, left grounded) [LEFT TO RESET]
7. Switch (S1), ~Forceoff for Level Shifter (right active, left grounded) [LEFT TO USE LOGIC HIGH]
8. Switch (S1), Forceon for Level Shifter (right active, left grounded) [LEFT TO USE LOGIC HIGH]
9. Switch (S2), Connected to NOTHING
10. Switch (S2), Reset for RFID module (right active, left grounded) [LEFT TO RESET]

CONNECTORS
11. RS232 DB9 DTE Connector (P2): Connected to UART3
12. RS232 DB9 DCE Connector (P3): Connected to UART0 - Use NULL modem cable to connect to DCE terminal to program processor
13. SD Card Connector (P4)
14. 19.2V Barrel Power Jack Connector (P6) - Optional Backlight Power for TFT
15. LCD connector (P0), TFT 54-pin Connector
16. LCD connector (P1), CTP 6-pin Connector
17. 5V Barrel Power Jack Connector (P7) - Required Power for Most Functionality

TEST HEADERS
18. 5-Pin Test Header (P5) - RFID Antenna Connector
19. 5-Pin Test Header (J0): [LCD COLOR INFORMATION]
   P1- Pin 70 on Processor - LCDVD[10] - Pin 22 TFT (G2)
   P2- Pin 72 on Processor - LCDVD[11] - Pin 23 TFT (G3)
   P3- Pin 74 on Processor - LCDVD[12] - Pin 24 TFT (G4)
   P4- Pin 76 on Processor - LCDVD[13] - Pin 25 TFT (G5)
   P5- Pin 78 on Processor - LCDVD[14] - Pin 26 TFT (G6)
20. 5-Pin Test Header (J1): [LCD COLOR INFORMATION]
   P1- Pin 80 on Processor - LCDVD[15] - Pin 27 TFT (G7) [LCD
   P2- Pin 82 on Processor - LCDVD[20] - Pin 16 TFT (B4)
   P3- Pin 88 on Processor - LCDVD[21] - Pin 17 TFT (B5)
   P4- Pin 90 on Processor - LCDVD[22] - Pin 18 TFT (B6)
   P5- Pin 92 on Processor - LCDVD[23] - Pin 19 TFT (B7)
22. 5-Pin Test Header (J3): [LCD COLOR INFORMATION / SERIAL INTERFACE]
   P1- Pin 106 on Processor - LCDVD[18] - Pin 14 TFT (B2)
   P2- Pin 124 on Processor - MOSI0 (Master Out Slave In for SPI) - Pin 11 TFT (SDI)
   P3- Pin 128 on Processor - SCK (Serial clock for SPI) - Pin 10 TFT (SCL)
   P4- Pin 130 on Processor - SSEL (Slave Select for SPI) - Pin 9 TFT (CS)
   P5- Pin 132 on Processor - LCDVD[7] - Pin 35 TFT (R7)
23. 5-Pin Test Header (J4): [LCD COLOR INFORMATION / SYNCH SIGNALS]
   P1- Pin 134 on Processor - LCDVD[6] - Pin 34 TFT (R6)
   P2- Pin 136 on Processor - LCDVD[5] - Pin 33 TFT (R5)
24. 1-Pin Test Header (J5): Pin 150 on Processor - LCDDCLK (LCD panel clock) - Pin 38 TFT (DCLK)
25. 5-Pin Test Header (J6): [LCD COLOR INFORMATION]
   P1- Pin 158 on Processor - LCDVD[17] - Pin 13 TFT (B1)
   P2- Pin 160 on Processor - LCDVD[16] - Pin 12 TFT (B0)
   P3- Pin 162 on Processor - LCDVD[9] - Pin 21 TFT (G1)
   P4- Pin 164 on Processor - LCDVD[8] - Pin 20 TFT (G0)
   P5- Pin 166 on Processor - LCDVD[1] - Pin 29 TFT (R1)
26. 1-Pin Test Header (J7): Pin 168 on Processor - LCDVD[0] - Pin 28 TFT (R0) [LCD CLR INFO]
27. 1-Pin Test Header (J8): Pin 170 on Processor - LCDVD[2] - Pin 30 TFT (R2) [LCD CLR INFO]
29. 1-Pin Test Header (J10): Pin 50 on Processor - SDA0 - Pin 3 CTP (SCL) [CTP Serial Clock]
30. 1-Pin Test Header (J11): Pin 48 on Processor - SCL0 - Pin 4 CTP (SDA) [CTP Serial Data]
32. 1-Pin Test Header (J13): Pin 154 on Processor - P2[0] GPI/O - Pin 6 CTP (WAKE) [CPU Intrpt to CTP]
33. 5-Pin Test Header (J14):
   P1- Pin 1 on Proc - External memory data line D12 to SDRAM
   P2- Pin 3 on Proc - External memory data line D3 to SDRAM
   P3- Pin 7 on Proc - External memory data line D13 to SDRAM
   P4- Pin 13 on Proc - External memory data line D4 to SDRAM
   P5- Pin 17 on Proc - External memory data line D5 to SDRAM
34. 5-Pin Test Header (J15):
   P1- Pin 21 on Proc - External memory data line D14 to SDRAM
   P2- Pin 23 on Proc - External memory data line D6 to SDRAM
   P3- Pin 27 on Proc - External memory data line D7 to SDRAM
   P4- Pin 28 on Proc - External memory data line D15 to SDRAM
   P5- Pin 49 on Proc - DQMOUT0 (Data mask 0 used with SDRAM)
35. 1-Pin Test Header (J16): Pin 43 on Processor - DQMOUT1 (Data mask 1 used with SDRAM)
36. 5-Pin Test Header (J17):
   P1- Pin 53 on Proc - CKEOUT0 (SDRAM clock enable 0)
   P2- Pin 59 on Proc - CLKOUT0 (SDRAM clock 0)
   P3- Pin 73 on Proc - DYCS0 (SDRAM chip select 0)
   P4- Pin 75 on Proc - External memory address line A0 to SDRAM
   P5- Pin 79 on Proc - External memory address line A1 to SDRAM
37. 5-Pin Test Header (J18):
   P1- Pin 83 on Proc - External memory address line A2 to SDRAM
   P2- Pin 87 on Proc - CAS (LOW active SDRAM Column Address Strobe)
   P3- Pin 95 on Proc - RAS (LOW active SDRAM Row Address Strobe)
   P4- Pin 97 on Proc - External memory address line A3 to SDRAM
   P5- Pin 103 on Proc - External memory address line A4 to SDRAM
38. 5-Pin Test Header (J19):
   P1- Pin 131 on Proc - External memory address line A9 to SDRAM
   P2- Pin 127 on Proc - External memory address line A8 to SDRAM
   P3- Pin 121 on Proc - External memory address line A7 to SDRAM
   P4- Pin 113 on Proc - External memory address line A6 to SDRAM
   P5- Pin 107 on Proc - External memory address line A5 to SDRAM
39. 1-Pin Test Header (J20): Pin 135 on Processor - External memory address line A10 to SDRAM
40. 1-Pin Test Header (J21): Pin 145 on Processor - External memory address line A11 to SDRAM
41. 1-Pin Test Header (J22): Pin 155 on Processor - External memory address line A13 to SDRAM
42. 5-Pin Test Header (J23):
   - P1: Pin 159 on Proc - External memory address line A14 to SDRAM
   - P2: Pin 179 on Proc - WE (LOW active Write Enable signal to SDRAM)
   - P3: Pin 191 on Proc - External memory data line D8 to SDRAM
   - P4: Pin 197 on Proc - External memory data line D0 to SDRAM
   - P5: Pin 199 on Proc - External memory data line D9 to SDRAM
43. 1-Pin Test Header (J24): Pin 201 on Processor - External memory data line D1 to SDRAM
44. 1-Pin Test Header (J25): Pin 205 on Processor - External memory data line D10 to SDRAM
45. 1-Pin Test Header (J26): Pin 207 on Processor - External memory data line D2 to SDRAM
46. 1-Pin Test Header (J27): Pin 208 on Processor - External memory data line D11 to SDRAM
47. 1-Pin Test Header (J28): Pin 100 on Processor - RXD2 (Receiver input for UART2)
48. 1-Pin Test Header (J29): Pin 98 on Processor - TXD2 (Transmitter output for UART2)
50. 1-Pin Test Header (J31): Pin 91 on Processor - P2[14] GPI/O for general testing
51. 1-Pin Test Header (J32): Pin 202 on Processor - TXD0 (UART0) transmitter output to pin 4 of level shifter
52. 1-Pin Test Header (J33): Pin 14 on Processor - TXD3 (UART3) to pin 11 of SM130
53. 1-Pin Test Header (J34): Pin 204 on Processor - RXD0 (UART0) input of pin 6 of Level Shifter
54. 1-Pin Test Header (J35): Pin 12 on Processor - RXD3 (UART3) input of pin 12 of SM130
55. 1-Pin Test Header (J36): Pin 2 on RS232 connector (P2) TDX
56. 1-Pin Test Header (J37): Pin 3 on RS232 connector (P2) RDX
57. 1-Pin Test Header (J38): Pin 2 on RS232 connector (P3) RDX
58. 1-Pin Test Header (J39): Pin 3 on RS232 connector (P3) TDX
59. 5-Pin Test Header (J40): [SDCARD information]
   - P1: Pin 171 on Proc - MCIDAT0 (BI), data line 0, to pin 7 of SD Card
   - P2: Pin 153 on Proc - MCIDAT1 (BI), data line 1, to pin 8 of SD Card
   - P3: Pin 163 on Proc - MCIDAT2 (BI), data line 2, to pin 9 of SD Card
   - P4: Pin 177 on Proc - MCICMD (BI), command line for SD Card pin 2
   - P5: Pin 185 on Proc - MCICLK (O), clock output to SD Card pin 5
60. 1-Pin Test Header (J41): Pin 157 on Processor to MCIDAT3 (BI), data line 3, to SD Card pin 1
61. 5-Pin Test Header (J42): [GPI/O for general testing]
   - P1: Pin 196 on Proc - P1[0] GPI/O for general testing
   - P2: Pin 194 on Proc - P1[1] GPI/O for general testing
   - P4: Pin 190 on Proc - P1[8] GPI/O for general testing
   - P5: Pin 188 on Proc - P1[9] GPI/O for general testing
62. 1-Pin Test Header (J43): Monitors 3v Power Plane
63. 1-Pin Test Header (J44): Monitors 5V Power Plane
64. 1-Pin Test Header (J45): Monitors 19.2V Power Trace