tynemouth software

COMMODORE PET IEEE-488 DIAGNOSTICS BUILD INSTRUCTIONS

MAIN BOARD

PARTS

- 1 x PET IEEE-488 Diagnostics PCB
- 1 x 24 way 0.156" edge connector (pins or solder tabs)
- 1 x 100nF axial capacitor
- 1 x 20 way LED bargraph (or 2 x 10 way)
- 2 x ULN2803A driver chips
- 2 x 9 commoned 470Ω resistor array
- 1 x right angle header pin

ASSEMBLY

Start with the capacitor, then the driver chips, LED display(s) and resistor arrays. The LED display should be installed so the printing on the side is facing the resistor arrays. The resistor arrays should be installed so the writing is facing away from the LED displays. The dots on the package indicate pin 1, as does the square pad. Fit the right angle pin into the pin marked +. The pin next to it (which is ground) can be ignored if powering the board from the PET datasette connector as ground is supplied through the IEEE-488 bus connector. Finally solder on the edge connector, at the end nearest the driver chips.

POWER BOARD

PARTS

- 1 x PET Datasette power PCB
- 1 x 12 way 0.156" edge connector (pins or solder tabs)
- 1 piece of wire

ASSEMBLY

Solder on the edge connector to the side marked 'computer'. The wire should be attached to the pin marked +. The wire can be threaded through the extra holes in the board to provide a strain relief. Cut it a suitable length to reach the pin on the side of the IEEE-488 board.

tynemouth software

COMMODORE PET IEEE-488 DIAGNOSTICS USAGE

The signals on the IEEE-488 bus are generated from several sources inside the PET. Each pin has a separate connection for reading the level on the bus and writing to the pin

Signal	Read	Write
DIO1-DIO8	PIA#1 PA0-PA7	PIA#1 PB0-PB7
EOI	PIA#2 PA6	PIA#2 CA2
DAV	VIA PB7	PIA#1 CB2
NRFD	VIA PB6	VIA PB1
NDAC	VIA PB0	PIA#1 CA2
IFC	N/C	Reset buffered through 7417
SRQ	PIA#1 CB1	N/C
ATN	PIA#2 CA1	VIA PB2
REN	N/C	0V (permanently asserted)

An IEEE-488 bus pin has two states, normally it is 'released' and will float high. No device will drive the bus high, there are pull up resistors in each device on the bus to allow the signal to float high when no device is driving the bus. When a devices wants to 'assert' a signal, it pulls it low. The LEDs show the bus level, in normal released state, the LEDs are lit, when asserted, the LED will be off. The LEDs are buffered by the ULN2803 drive chips, so as to reduce the load on the bus.

State	Voltage on pins	LED state
Normal / Released	> 2V	On
Asserted	< 1V	Off

To test these, various PEEKs and POKEs can be used to alter pin states and see if they change. If poking a value causes the LED to change, the writing pin is working, if it is read back correctly, then the reading is working.

Pin	Write 0 (Assert)	Write 1 (Release)	Read value
DIO1-DIO8	POKE 59426,0	POKE 59426,255	PRINT PEEK(59424)
EOI	POKE 59409,52	POKE 59409,60	PRINT PEEK(59408)
DAV	POKE 59427,52	POKE 59427,60	PRINT PEEK(59456)
NRFD	POKE 59456,255	POKE 59409,253	PRINT PEEK(59456)
NDAC	POKE 59425,52	POKE 59425,60	PRINT PEEK(59456)

REPRESENTATIVE PER PIN SCHEMATIC