

PORTS, CABLES, SEX AND THE MEDUSA

What a title! Looks like a nautical topic mixed in with a story taken from Greek mythology! But it is just the formulas for ports and cables that I promised last month, plus a few hints and kinks. Nothing kinky.

What does sex have to do with it? Well, I always had trouble remembering which port connector on the back of my computers was the printer port, and which was the serial port. But there is a relationship that can help you remember, just as it did for me, and the relationship is based on the sex (more politically correct today, gender) of the connectors.

If we use the word PLUG to describe a male connector on the back of the computer, and the word SHELL to describe a female connector, then the following relationship exists. THE CABLE END THAT CONNECTS TO THE COMPUTER HAS THE SAME FIRST LETTER AS THE FIRST LETTER OF THE TYPE OF PORT IT IS SERVICING. Thus, a Parallel cable is a Plug where it attaches to the computer, and a Serial cable is a Shell where it connects to the computer. That also means that the connector on the computer is the opposite. A computer's Parallel (Printer) port is a Shell (female), and the Serial port is a Plug (male).

Now, on to building your own cables. Why bother? True enough, you can purchase a serial or parallel cable today for just a couple of bucks, but it is always more satisfying for us hams to home-brew when we can. Furthermore, even if you elect to purchase cables, you really ought to check them to make sure they are OK, which is easily done with an ohmmeter (use one with an audible tone; it really speeds things up). Below are the pin-outs for the three most common cables you will want to build or check, a 25 pin to 25 pin serial cable (used in most XTs), a 9 pin to 25 pin serial cable (useful with AT computers) and a printer (parallel) cable. Abbreviations for the functions (FUN) are shown, along with my personal preference for the wire color (col). Note that wire color is arbitrary; no engineering standard exists, so use mine or use your own. Other abbreviations: SHL = SHELL, FEM = FEMALE, PRN = PRINTER, CMPTR = COMPUTER.

25 - 25 SERIAL

SHL FEM	FUN	col	PLUG MALE
2	TD	red	2
3	RD	blk	3
4	RTS	gry	4
5	CTS	pur	5
6	DSR	blu	6
7	SG	grn	7
8	CD	brn	8
20	DTR	yel	20
22	RI	org	22

9 - 25 SERIAL

SHL FEM	FUN	col	PLUG MALE
1	CD	brn	8
2	RD	blk	3
3	TD	red	2
4	DTR	yel	20
5	SG	grn	7
6	DSR	blu	6
7	RTS	gry	4
8	CTS	pur	5
9	RI	org	22

PRINTER (PARALLEL)

PRN PIN	FUNCTION	CMPTR PIN
1	STROBE	1
2	D1	2
3	D2	3
4	D3	4
5	D4	5
6	D5	6
7	D6	7
8	D7	8
9	D8	9
10	ACK	10
11	BUSY	11
12	PAPER END	12
13	SELECTED	13
16	GROUND	18-25
31	RESET	16
32	ERROR	15

NOTES ON THE PRINTER CABLE:

PRN end is a 36-pin Centronics plug.
CMPTR end is a PLUG (male DB-25).

There are 16 pins soldered on the PRN end.

There are 23 pins soldered on the CMPTR end.

The cable you use will need 16 conductors.

By the way, remember our analogy last month about 8 people going down a hall, shoulder to shoulder (in parallel) being like the state of 8 switches sent down 8 wires at the same time? Look at D1 - D8 in the parallel cable. There are the 8 wires.

Let me end with a tip. If you roll your own, make yourself a "universal" serial cable, which I call a Medusa cable after the mythological Gorgon who had a head full of snakes (the one who turned any mortal to stone if they looked at her). The problem? Serial ports can require the use of either a 9-pin or 25-pin SHELL (female) connector on the end that plugs into the computer. The other end is always a 25-pin PLUG (male) connector. Murphy's law of serial cables says that if you need a 9-pin version, you will only have a 25-pin on hand, AND VICE VERSA. The solution? Make a cable with both a 9-pin and 25-pin SHELL connector on one end, and a 25-pin PLUG connector on the other. With one or two Medusa cables on hand, you will never have to stop your project long enough to go to Radio Shack for a new cable or cable adapter.