# Parallel Interface

# Parallel Interfaces

- History
  - In the context of PCs, a "parallel interface" implies a Centronics-compatible printer interface
  - Originally developed by printer company, Centronics
  - Introduced on the IBM PC (1981) as an LPT ("line printer") port
  - Improvements
    - EPP (Enhanced Parallel Port), development by Intel, Xircom, Xenith
    - Enshrined in the standard IEEE-1284 (1994)
      - "Standard Signaling Method for a Bi-directional Parallel Peripheral Interface for Personal Computers"
      - Includes Centronics/LPT mode, EPP mode, and…
      - ECP mode (Enhanced Capability Port)

# Parallel Interfaces

- Data Rate
  - 150 Kbytes/s (LPT) to 1.5 Mbytes/s (ECP)
- Configuration
  - Parallel, point-to-point

# Typical Printer Cable
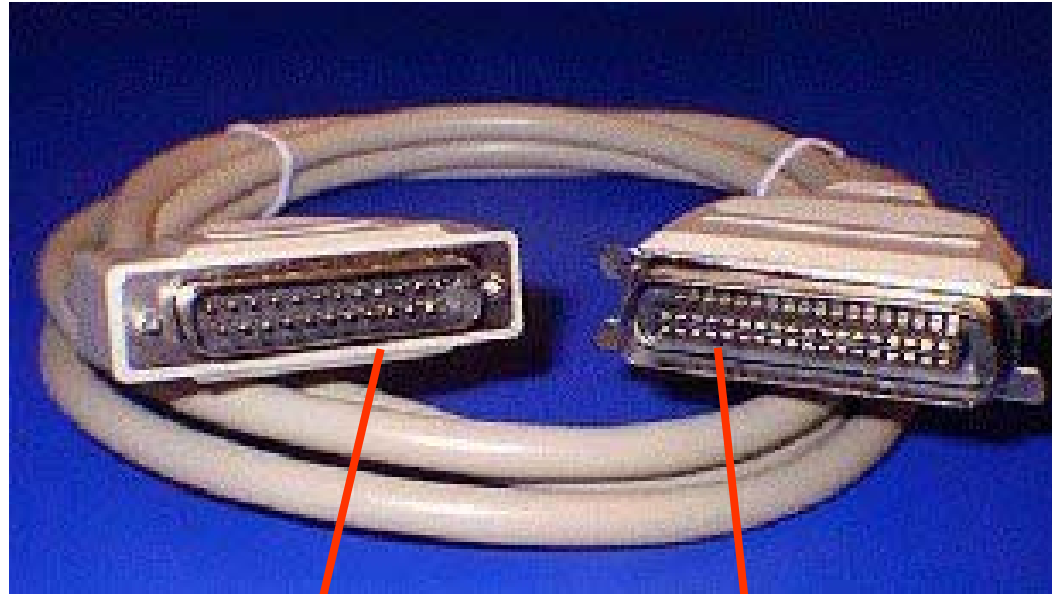


DB25P (male)
- Connects to PC

Centronics male
- 36 pins
- Connects to printer

# Pinouts

| Direction | DB25 Pin | Cent. Pin | Signal | Function |
|---|---|---|---|---|
| out | 1 | 1 | /Strobe | low pulse (>0.5 µs) to send |
| out | 2 | 2 | Data0 | LSB |
| out | 3 | 3 | Data1 | . |
| out | 4 | 4 | Data2 | . |
| out | 5 | 5 | Data3 | . |
| out | 6 | 6 | Data4 | . |
| out | 7 | 7 | Data5 | . |
| out | 8 | 8 | Data6 | . |
| out | 9 | 9 | Data7 | MSB |
| in | 10 | 10 | /Ack | Low pulse ack. (~5 µs) |
| in | 11 | 11 | Busy | High for busy/offline/error |
| in | 12 | 12 | PaperEnd | High for out of paper |
| in | 13 | 13 | SelectIn | High for printer selected |
| out | 14 | 14 | /AutoFd | Low to autofeed one line |
| in | 15 | 32 | /Error | Low for Error |
| out | 16 | 31 | /Init | Low pulse (>50 s) to init |
| out | 17 | 36 | /Select | Low to select printer |
| – | 18–25 | 19–30, 33,17,16 | Ground | – |