GPIB protocol

GPIB command bytes

The meaning and values of the possible GPIB command bytes are as follows:

Table 12. GPIB command bytes

byte value (hexadecimal)	name	description
0x1	GTL	Go to local
0x4	SDC	Selected device clear
0x5	PPConfig (also 'PPC' on non-powerpc architectures)	Parallel poll configure
0x8	GET	Group execute trigger
0x9	TCT	Take control
0x11	LLO	Local lockout
0x14	DCL	Device clear
0x15	PPU	Parallel poll unconfigure
0x18	SPE	Serial poll enable
0x19	SPD	Serial poll disable
0x20 to 0x3e	MLA0 to MLA30	My (primary) listen address 0 to 30
0x3f	UNL	Unlisten
0x40 to 0x5e	MTA0 to MTA30	My (primary) talk address 0 to 30
0x5f	UNT	Untalk
0x60 to 0x6f	MSA0 to MSA15, also PPE	When following a talk or listen address, this is 'my secondary address' 0 to 15. When following a parallel poll configure, this is 'parallel poll enable'. For parallel poll enable, the least significant 3 bits of the command byte specify which DIO line the device should use to send its parallel poll response. The fourth least significant bit (0x8) indicates the 'sense' or polarity the device should use when responding.
0x70 to 0x7d	MSA16 to MSA29, also PPD	When following a talk or listen address, this is 'my secondary address' 16 to 29. When following a parallel poll configure, this is

byte value (hexadecimal)	name	description
		'parallel poll disable'.
0x7e	MSA30	My secondary address 30

GPIB bus lines

Physically, the GPIB bus consists of 8 data lines, 3 handshaking lines, and 5 control lines (and 8 ground lines). Brief descriptions of how they are used follow:

Table 13. GPIB bus lines

bus line	description	pin number
DIO1 through DIO8	Data input/output bits. These 8 lines are used to read and write the 8 bits of a data or command byte that is being sent over the bus.	DIO1 to DIO4 use pins 1 to 4, DIO5 to DIO8 use pins 13 to 16
EOI	End-or-identify. This line is asserted with the last byte of data during a write, to indicate the end of the message. It can also be asserted along with the ATN line to conduct a parallel poll.	5
DAV	Data valid. This is a handshaking line, used to signal that the value being sent with DIO1-DIO8 is valid. During transfers the DIO1-DIO8 lines are set, then the DAV line is asserted after a delay called the 'T1 delay'. The T1 delay lets the data lines settle to stable values before they are read.	6
NRFD	Not ready for data. NRFD is a handshaking line asserted by listeners to indicate they are not ready to receive a new data byte.	7
NDAC	Not data accepted. NDAC is a handshaking line asserted by listeners to indicate they have not yet read the byte contained on the DIO lines.	8
IFC	Interface clear. The system controller can assert this line (it should be asserted for at least 100 microseconds) to reset the bus and make itself controller-in-charge.	9
SRQ	Service request. Devices on the bus can assert this line to request service from the controller-in-charge. The controller can then poll the devices until it finds the device requesting service, and perform whatever action is necessary.	10
ATN	Attention. ATN is asserted to indicate that the DIO lines contain a command byte (as opposed to a data byte). Also, it is asserted with EOI when conducting parallel polls.	11
REN	Remote enable. Asserted by the system controller, it enables devices to enter remote mode. When REN is asserted, a device will enter remote mode when it is addressed by the controller. When REN is false, all devices will immediately return to local mode.	17

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