ICS ELECTRONICS
division of Systems West Inc.

IEEE 488

APPLICATION BULLETIN

HPGL COMPATIBLE PRINTERS AND INSTRUMENTS
For ICS's Model 4892A and 4892B GPIB to Printer Interfaces

INTRODUCTION

Many 4892A and 4892B applications involve connecting the 4892A or 4892B between an instrument and a printer so the user can directly print the instrument's GPIB Bus output without the use of a computer or a GPIB Bus Controller. Originally the instrument was directly connected to a printer or plotter with a GPIB interface. Printing is done by simply pressing a button on the instrument's front panel. As these older printers and plotters wear out, users want to replace them with new low cost printers. The problem has been a lack of information about compatible printers for the various test instruments. This application note lists the test instruments and their compatible printers.

HPGL and PCL 5

Hewlet-Packard (now Agilent) developed a graphics language for their test instruments to use when communicating with printers and plotters. This graphics language is known as HPGL and is included in many of todays' more expensive stand-alone test instruments made by Agilent, Anritsu, etc.

Hewlet-Packard has incorporated HPGL capability as part of their Page Description Language for their printers starting with PCL level 5 (PCL5). The latest PCL revision, PCL6 is backward compatible with PCL5 and includes the HPGL graphics capability. Other printer manufacturers are now including PCL conversion capability in their printers. When buying a non-HP printer, verify that it is both PCL5 and HPGL compatible.

HPGL COMPATIBLE TEST INSTRUMENTS

The following is a partial list of instruments that have been used with the 4892A or 4892B and their HPGL capability. This list is being added to as users report their applications to ICS.

Advantest

R3767BH Analyzer	HPGL

Agilent

HP875/A	
HP1631D Logic Analyzer	HPGL
HP35066A Spectrum Analyzer	HPGL
HP3561A Spectrum Analyzer	HPGL
HP3753 Network Analyzer	HPGL
HP4195A Analyzer [4]	HPGL
HP8357 Network Analyzer	HPGL
HP8510/10C Network Analyzer[2]	HPGL
HP8563 Spectrum Analyzer	HPGL
HP8565E Spectrum Analyzer	HPGL
HP8566B Spectrum Analyzer	HPGL
HP8567 Spectrum Analyzer	HPGL
HP8591A/E Spectrum Analyzer	HPGL
HP8719 Analyzer	HPGL
HP8720D Analyzer	HPGL
HP8751A Analyzer	HPGl
HP8753C Analyzer [3]	HPGL
HP9816 Calculator	

Anritsu

MS2663B Analyzer
MS2667C Spectrum Analyzer[1]
MT4701A Microwave Tester

Tektronix

TDF685 Oscilloscope[4]
TDS3014 Oscilloscope[4]

NON-COMPATIBLE INSTRUMENTS

The following instruments will not output plots directly to the 4892 because they interrogate the plotter. These instruments should be used with a PC that can read the plot data from the instrument and then output it to the 4892 or to a printer.

Other non-compatible instruments

Anritsu
MS710F Analyzer

Tektronix
TD494 Oscilloscope

PCL5 and PCL6 PRINTERS

The following is a partial list of PCL5 and PCL6 compatible printers with Centronics parallel interfaces. This list includes some printers that are out of production for reference purposes and others in current production. Printers with Centronics parallel interfaces are becoming hard to find. Refer to ICS's 4872 datasheet and AB48-45 for a list of inexpensive printers with Ethernet interfaces.

BROTHER	Graphics	PCL Lvl
HL-5340D	HP-GL	PCL 6
HL 5370DW	HP-GL	PCL 6

DELL	Graphics	PCL Lvl
1700, 1710, 1720		PCL 5e/6
2130cn		PCL 5e/6
2330dn		PCL 5e/6
3100cn		PCL 5e/6
5100cn		PCL 5e/6

EPSON	Graphics	PCL Lvl
FX Series (not verified)		

HP	Graphics	PCL Lvl
Deskjet 842C		PCL 5/6
DeskJets 1200C/1600C	HP-GL	PCL 5/6
DeskJet 2200(w/PCL5 Opt.)	HP-GL	PCL 5/6
DeskJet 2250/2280/2600	HP-GL	PCL 5/6
DeskJet 2500C+	HP-GL	PCL 5/6
Business Inkjet 3000	HP-GL	PCL 5/6
LaserJet 3/4/5/6	HP-GL	PCL 5/6
LaserJet 11XX	HP-GL	PCL 5/6
LaserJet 1200	HP-GL	PCL 5e/6
LaserJet 1320, 1320t	HP-GL	PCL 5e/6
LaserJets 2035	HP-GL	PCL 5e/6
LaserJet 3005, 3005d	HP-GL	PCL 5e/6
LaserJet 33XX	HP-GL	PCL 5/6
LaserJet 4XXX	HP-GL	PCL 5/6
LaserJet 4200	HP-GL	PCL 5/6
LaserJet 5XXX	HP-GL	PCL 5/6
LaserJet 6XXX	HP-GL	PCL 5/6
LaserJet 8XXX	HP-GL	PCL 5/6

Lexmart Printers	Graphics	PCL Lvl
No parallel printers listed		

IBM Printers (5)	Graphics	PCL Lvl
Infoprint 1145 MPF Option	HP-GL	PCL 6
Infoprint 1222	HP-GL	PCL 6
Infoprint 1226	HP-GL	PCL 6
Infoprint 1312	HP-GL	PCL 6
Infoprint 1332 MPF Option	HP-GL	PCL 6
Infoprint 1352 MPF Option	HP-GL	PCL 6
Infoprint 1372 MPF Option	HP-GL	PCL 6
Infoprint 1220 color MPF Opt	HP-GL	PCL 6
Infoprint 1357 color	HP-GL	PCL 6

NEC Printers (5)	Graphics	PCL Lvl
NEC SuperScript 660	HP-GL	PCL5e
NEC SuperScript 660i	HP-GL	PCL5e
NEC SuperScript 660 Plus	HP-GL	PCL5e
NEC SuperScript 1450	HP-GL	PCL5e/6
NEC SuperScript 1450N	HP-GL	PCL5e/6
NEC SuperScript 1800	HP-GL	PCL5e/6
NEC SuperScript 1800N	HP-GL	PCL5e/6
NEC SuperScript 4200	HP-GL	PCL5e
NEC SuperScript 4200N	HP-GL	PCL5e
NEC SuperScript 4400	HP-GL	PCL5e
NEC SuperScript 4400N	HP-GL	PCL5e
NEC SuperScript 4600N	HP-GL	PCL5e
NEC SuperScript 4650	HP-GL	PCL5e
NEC SuperScript 4650N	HP-GL	PCL5e
NEC SuperScript 4650NX	HP-GL	PCL5e
NEC Silentwriter 1760	HP-GL	PCL5e
NEC Silentwriter 1765	HP-GL	PCL5e

4892B vs 4892A and older 4892s

The 4892B is the latest version of ICS's 4892 GPIB to Printer Interfaces. The 4892B is physically interchangeable with the 4892 and 4892A but uses a GPIB Device Trigger to access the internal configuration logic. The 4892 and 4892A use an Unlisten My-listen-address Unlisten address sequence to switch to its internal configuration logic. The 4892A and 4892B have a female DB-25 printer connector that is like the printer connector on a PC. The original 4892s had a Centronics type 36-pin connector for the printer interface. Later versions of the 4892As and all 4892Bs include the ability to generate automatic formfeed and plotmode commands

SUMMARY

This application note has listed several printers that can be successfully used with the 4892, 4892A and 4892B GPIB to Printer Interfaces and some analyzers and other test instruments that output HPGL coded data. If you have printing problems, read the following notes or contact support@icselect.com.

NOTES

(1) Set the MS2667C to Printer output, to HP2225 and drawing size to 1x 1.

(2) Set the HP8510C to 300 dpi, monochrome and auto paper feed for the Deskjet 842C printer.

(3) Use the HP8753C with a 4892B with formfeed set On. Set the HP8753C to match the 4872's GPIB address.

(4) Set to Listen-only

(5) IBM and NEC printers are discontinued and listed for reference purposes only