

Network Working Group  
Request for Comments: 1010

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J. Postel  
ISI  
May 1987

Obsoletes RFCs: 990, 960, 943, 923, 900, 870,  
820, 790, 776, 770, 762, 758,  
755, 750, 739, 604, 503, 433, 349  
Obsoletes IENS: 127, 117, 93

## ASSIGNED NUMBERS

### Status of this Memo

This memo is an official status report on the numbers used in protocols in the Internet community. Distribution of this memo is unlimited.

### Introduction

This Network Working Group Request for Comments documents the currently assigned values from several series of numbers used in network protocol implementations. This RFC will be updated periodically, and in any case current information can be obtained from Joyce Reynolds. If you are developing a protocol or application that will require the use of a link, socket, port, protocol, etc., please contact Joyce to receive a number assignment.

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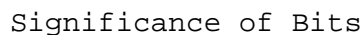
Most of the protocols mentioned here are documented in the RFC series of notes. Some of the items listed are undocumented. Further information on protocols can be found in the memo "Official Internet Protocols" [91]. The more prominent and more generally used are documented in the "DDN Protocol Handbook, Volume Two, DARPA Internet Protocols" [36] prepared by the NIC. Other collections of older or obsolete protocols are contained in the "Internet Protocol Transition Workbook" [57], or in the "ARPANET Protocol Transition Handbook" [38]. For further information on ordering the complete 1985 DDN Protocol Handbook, write: SRI International (SRI-NIC), DDN Network Information Center, Room EJ291, 333 Ravenswood Avenue, Menlo Park, CA., 94025; or call: 1-800-235-3155.

In the entries below, the name and mailbox of the responsible individual is indicated. The bracketed entry, e.g., [nn,iii], at the

The convention in the documentation of Internet Protocols is to express numbers in decimal and to picture data in "big-endian" order [14]. That is, fields are described left to right, with the most significant octet on the left and the least significant octet on the right.

| 0 |   |   |   |   |   |   |   |   |   | 1 |   |   |    |   |   |   |   |   |   | 2 |   |   |    |   |   |   |   |   |   | 3 |   |   |    |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|---|----|--|--|--|--|--|--|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |   |    |  |  |  |  |  |  |
| + | - | + | - | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  |  |  |  |  |  |  |
|   |   |   |   | 1 |   |   |   |   |   |   |   |   | 2  |   |   |   |   |   |   |   |   |   | 3  |   |   |   |   |   |   |   |   |   | 4  |  |  |  |  |  |  |
| + | - | + | - | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  |  |  |  |  |  |  |
|   |   |   |   | 5 |   |   |   |   |   |   |   |   | 6  |   |   |   |   |   |   |   |   |   | 7  |   |   |   |   |   |   |   |   |   | 8  |  |  |  |  |  |  |
| + | - | + | - | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  |  |  |  |  |  |  |
|   |   |   |   | 9 |   |   |   |   |   |   |   |   | 10 |   |   |   |   |   |   |   |   |   | 11 |   |   |   |   |   |   |   |   |   | 12 |  |  |  |  |  |  |
| + | - | + | - | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  | + | - | + | - | + | - | + | - | + | -  |  |  |  |  |  |  |

Whenever an octet represents a numeric quantity the left most bit in the diagram is the high order or most significant bit. That is, the bit labeled 0 is the most significant bit. For example, the following diagram represents the value 170 (decimal).



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## VERSION NUMBERS

In the Internet Protocol (IP) [36,80] there is a field to identify the version of the internetwork general protocol. This field is 4 bits in size.

### Assigned Internet Version Numbers

| Decimal | Keyword | Version           | References |
|---------|---------|-------------------|------------|
| -----   | -----   | -----             | -----      |
| 0       |         | Reserved          | [JBP]      |
| 1-3     |         | Unassigned        | [JBP]      |
| 4       | IP      | Internet Protocol | [80,JBP]   |
| 5       | ST      | ST Datagram Mode  | [41,JWF]   |
| 6-14    |         | Unassigned        | [JBP]      |
| 15      |         | Reserved          | [JBP]      |

# PROTOCOL NUMBERS

In the Internet Protocol (IP) [36,80] there is a field, called Protocol, to identify the the next level protocol. This is an 8 bit field.

## Assigned Internet Protocol Numbers

| Decimal | Keyword     | Protocol                       | References  |
|---------|-------------|--------------------------------|-------------|
| -----   | -----       | -----                          | -----       |
| 0       |             | Reserved                       | [JBP]       |
| 1       | ICMP        | Internet Control Message       | [72,JBP]    |
| 2       | IGMP        | Internet Group Management      | [34,JBP]    |
| 3       | GGP         | Gateway-to-Gateway             | [49,MB]     |
| 4       |             | Unassigned                     | [JBP]       |
| 5       | ST          | Stream                         | [41,JWF]    |
| 6       | TCP         | Transmission Control           | [81,JBP]    |
| 7       | UCL         | UCL                            | [PK]        |
| 8       | EGP         | Exterior Gateway Protocol      | [92,DLM1]   |
| 9       | IGP         | any private interior gateway   | [JBP]       |
| 10      | BBN-RCC-MON | BBN RCC Monitoring             | [SGC]       |
| 11      | NVP-II      | Network Voice Protocol         | [15,SC3]    |
| 12      | PUP         | PUP                            | [7,XEROX]   |
| 13      | ARGUS       | ARGUS                          | [RWS4]      |
| 14      | EMCON       | EMCON                          | [BN7]       |
| 15      | XNET        | Cross Net Debugger             | [47,JFH2]   |
| 16      | CHAOS       | Chaos                          | [NC3]       |
| 17      | UDP         | User Datagram                  | [79,JBP]    |
| 18      | MUX         | Multiplexing                   | [16,JBP]    |
| 19      | DCN-MEAS    | DCN Measurement Subsystems     | [DLM1]      |
| 20      | HMP         | Host Monitoring                | [48,RH6]    |
| 21      | PRM         | Packet Radio Measurement       | [ZSU]       |
| 22      | XNS-IDP     | XEROX NS IDP                   | [102,XEROX] |
| 23      | TRUNK-1     | Trunk-1                        | [SA2]       |
| 24      | TRUNK-2     | Trunk-2                        | [SA2]       |
| 25      | LEAF-1      | Leaf-1                         | [SA2]       |
| 26      | LEAF-2      | Leaf-2                         | [SA2]       |
| 27      | RDP         | Reliable Data Protocol         | [106,RH6]   |
| 28      | IRTP        | Internet Reliable Transaction  | [59,TXM]    |
| 29      | ISO-TP4     | ISO Transport Protocol Class 4 | [51,RC77]   |
| 30      | NETBLT      | Bulk Data Transfer Protocol    | [13,DDC1]   |
| 31      | MFE-NSP     | MFE Network Services Protocol  | [93,BCH2]   |
| 32      | MERIT-INP   | MERIT Internodal Protocol      | [HWB]       |
| 33      | SEP         | Sequential Exchange Protocol   | [JC120]     |
| 34-60   |             | Unassigned                     | [JBP]       |
| 61      |             | any host internal protocol     | [JBP]       |
| 62      | CFTP        | CFTP                           | [42,HCF2]   |
| 63      |             | any local network              | [JBP]       |

|        |            |                                  |       |
|--------|------------|----------------------------------|-------|
| 64     | SAT-EXPAK  | SATNET and Backroom EXPAK        | [SHB] |
| 65     | MIT-SUBNET | MIT Subnet Support               | [NC3] |
| 66     | RVD        | MIT Remote Virtual Disk Protocol | [MBG] |
| 67     | IPPC       | Internet Pluribus Packet Core    | [SHB] |
| 68     |            | any distributed file system      | [JBP] |
| 69     | SAT-MON    | SATNET Monitoring                | [SHB] |
| 70     |            | Unassigned                       | [JBP] |
| 71     | IPCV       | Internet Packet Core Utility     | [SHB] |
| 72-75  |            | Unassigned                       | [JBP] |
| 76     | BR-SAT-MON | Backroom SATNET Monitoring       | [SHB] |
| 77     |            | Unassigned                       | [JBP] |
| 78     | WB-MON     | WIDEBAND Monitoring              | [SHB] |
| 79     | WB-EXPAK   | WIDEBAND EXPAK                   | [SHB] |
| 80-254 |            | Unassigned                       | [JBP] |
| 255    |            | Reserved                         | [JBP] |

## PORT NUMBERS

Ports are used in the TCP [36,81] to name the ends of logical connections which carry long term conversations. For the purpose of providing services to unknown callers, a service contact port is defined. This list specifies the port used by the server process as its contact port. The contact port is sometimes called the "well-known port".

To the extent possible, these same port assignments are used with the UDP [37,79].

To the extent possible, these same port assignments are used with the ISO-TP4 [52].

The assigned ports use a small portion of the possible port numbers. The assigned ports have all except the low order eight bits cleared to zero. The low order eight bits are specified here.

### Port Assignments:

| Decimal | Keyword    | Description                  | References |
|---------|------------|------------------------------|------------|
| -----   | -----      | -----                        | -----      |
| 0       |            | Reserved                     | [JBP]      |
| 1-4     |            | Unassigned                   | [JBP]      |
| 5       | RJE        | Remote Job Entry             | [9,JBP]    |
| 7       | ECHO       | Echo                         | [70,JBP]   |
| 9       | DISCARD    | Discard                      | [69,JBP]   |
| 11      | USERS      | Active Users                 | [65,JBP]   |
| 13      | DAYTIME    | Daytime                      | [68,JBP]   |
| 15      |            | Unassigned                   | [JBP]      |
| 17      | QUOTE      | Quote of the Day             | [75,JBP]   |
| 19      | CHARGEN    | Character Generator          | [67,JBP]   |
| 20      | FTP-DATA   | File Transfer [Default Data] | [71,JBP]   |
| 21      | FTP        | File Transfer [Control]      | [71,JBP]   |
| 23      | TELNET     | Telnet                       | [87,JBP]   |
| 25      | SMTP       | Simple Mail Transfer         | [77,JBP]   |
| 27      | NSW-FE     | NSW User System FE           | [17,RHT]   |
| 29      | MSG-ICP    | MSG ICP                      | [63,RHT]   |
| 31      | MSG-AUTH   | MSG Authentication           | [63,RHT]   |
| 33      | DSP        | Display Support Protocol     | [MLC]      |
| 35      |            | any private printer server   | [JBP]      |
| 37      | TIME       | Time                         | [83,JBP]   |
| 39      | RLP        | Resource Location Protocol   | [MA]       |
| 41      | GRAPHICS   | Graphics                     | [98,JBP]   |
| 42      | NAMESERVER | Host Name Server             | [74,JBP]   |
| 43      | NICNAME    | Who Is                       | [46,JAKE]  |
| 44      | MPM-FLAGS  | MPM FLAGS Protocol           | [JBP]      |

|     |            |                                       |             |
|-----|------------|---------------------------------------|-------------|
| 45  | MPM        | Message Processing Module [recv]      | [73,JBP]    |
| 46  | MPM-SND    | MPM [default send]                    | [73,JBP]    |
| 47  | NI-FTP     | NI FTP                                | [103,SK8]   |
| 49  | LOGIN      | Login Host Protocol                   | [PHD1]      |
| 51  | LA-MAINT   | IMP Logical Address Maintenance       | [58,AGM]    |
| 53  | DOMAIN     | Domain Name Server                    | [61,70,PM1] |
| 55  | ISI-GL     | ISI Graphics Language                 | [6,RB9]     |
| 57  |            | any private terminal access           | [JBP]       |
| 59  |            | any private file service              | [JBP]       |
| 61  | NI-MAIL    | NI MAIL                               | [4,SK8]     |
| 63  | VIA-FTP    | VIA Systems - FTP                     | [DXD]       |
| 65  | TACACS-DS  | TACACS-Database Service               | [3,RHT]     |
| 67  | BOOTPS     | Bootstrap Protocol Server             | [29,WJC2]   |
| 68  | BOOTPC     | Bootstrap Protocol Client             | [29,WJC2]   |
| 69  | TFTP       | Trivial File Transfer                 | [95,DDC1]   |
| 71  | NETRJS-1   | Remote Job Service                    | [8,RTB3]    |
| 72  | NETRJS-2   | Remote Job Service                    | [8,RTB3]    |
| 73  | NETRJS-3   | Remote Job Service                    | [8,RTB3]    |
| 74  | NETRJS-4   | Remote Job Service                    | [8,RTB3]    |
| 75  |            | any private dial out service          | [JBP]       |
| 77  |            | any private RJE service               | [JBP]       |
| 79  | FINGER     | Finger                                | [44,KLH]    |
| 81  | HOSTS2-NS  | HOSTS2 Name Server                    | [EAK1]      |
| 83  | MIT-ML-DEV | MIT ML Device                         | [DPR]       |
| 85  | MIT-ML-DEV | MIT ML Device                         | [DPR]       |
| 87  |            | any private terminal link             | [JBP]       |
| 89  | SU-MIT-TG  | SU/MIT Telnet Gateway                 | [MRC]       |
| 91  | MIT-DOV    | MIT Dover Spooler                     | [EBM]       |
| 93  | DCP        | Device Control Protocol               | [DT15]      |
| 95  | SUPDUP     | SUPDUP                                | [20,MRC]    |
| 97  | SWIFT-RVF  | Swift Remote Vitural File Protocol    | [MXR]       |
| 98  | TACNEWS    | TAC News                              | [FRAN]      |
| 99  | METAGRAM   | Metagram Relay                        | [GEOF]      |
| 101 | HOSTNAME   | NIC Host Name Server                  | [45,JAKE]   |
| 102 | ISO-TSAP   | ISO-TSAP                              | [12,MTR]    |
| 103 | X400       | X400                                  | [HCF2]      |
| 104 | X400-SND   | X400-SND                              | [HCF2]      |
| 105 | CSNET-NS   | Mailbox Name Nameserver               | [96,MAS3]   |
| 107 | RTELNET    | Remote Telnet Service                 | [76,JBP]    |
| 109 | POP-2      | Post Office Protocol - Version 2      | [11,JKR1]   |
| 111 | SUNRPC     | SUN Remote Procedure Call             | [DXG]       |
| 113 | AUTH       | Authentication Service                | [99,MCSJ]   |
| 115 | SFTP       | Simple File Transfer Protocol         | [56,MKL1]   |
| 117 | UUCP-PATH  | UUCP Path Service                     | [35,MAE]    |
| 119 | NNTP       | Network News Transfer Protocol        | [53,PL4]    |
| 121 | ERPC       | HYDRA Expedited Remote Procedure Call | [101,JXO]   |
| 123 | NTP        | Network Time Protocol                 | [60,DLM1]   |
| 125 | LOCUS-MAP  | Locus PC-Interface Net Map Server     | [105,BXG]   |

|         |             |                                |           |
|---------|-------------|--------------------------------|-----------|
| 127     | LOCUS-CON   | Locus PC-Interface Conn Server | [105,BXG] |
| 129     | PWDGEN      | Password Generator Protocol    | [107,FJW] |
| 130     | CISCO-FNA   | CISCO FNATIVE                  | [WXB]     |
| 131     | CISCO-TNA   | CISCO TNATIVE                  | [WXB]     |
| 132     | CISCO-SYS   | CISCO SYSMANT                  | [WXB]     |
| 133     | STATSRV     | Statistics Service             | [DLM1]    |
| 134     | INGRES-NET  | INGRES-NET Service             | [MXB]     |
| 135     | LOC-SRV     | Location Service               | [JXP]     |
| 136     | PROFILE     | PROFILE Naming System          | [LLP]     |
| 137     | NETBIOS-NS  | NETBIOS Name Service           | [JBP]     |
| 138     | NETBIOS-DGM | NETBIOS Datagram Service       | [JBP]     |
| 139     | NETBIOS-SSN | NETBIOS Session Service        | [JBP]     |
| 140     | EMFIS-DATA  | EMFIS Data Service             | [GB7]     |
| 141     | EMFIS-CNTL  | EMFIS Control Service          | [GB7]     |
| 142     | BL-IDM      | Britton-Lee IDM                | [SXS1]    |
| 143-159 |             | Unassigned                     | [JBP]     |
| 160-223 |             | Reserved                       | [JBP]     |
| 224-241 |             | Unassigned                     | [JBP]     |
| 243     | SUR-MEAS    | Survey Measurement             | [5,AV]    |
| 245     | LINK        | LINK                           | [10,RDB2] |
| 247-255 |             | Unassigned                     | [JBP]     |



# DOMAIN SYSTEM PARAMETERS

The Internet Domain Naming System (DOMAIN) includes several parameters. These are documented in RFC 883 [61]. The CLASS parameter is listed here. The per CLASS parameters are defined in separate RFCs as indicated.

Domain System Parameters:

| Decimal | Name       | References   |
|---------|------------|--------------|
| -----   | ----       | -----        |
| 0       | Reserved   | [ PM1 ]      |
| 1       | Internet   | [ 61 , PM1 ] |
| 2       | Unassigned | [ PM1 ]      |
| 3       | Chaos      | [ PM1 ]      |
| 4-65534 | Unassigned | [ PM1 ]      |
| 65535   | Reserved   | [ PM1 ]      |

### ARPANET LOGICAL ADDRESSES

The ARPANET facility for "logical addressing" is described in RFC 878 [57] and RFC 1005 [109]. A portion of the possible logical addresses are reserved for standard uses.

There are 49,152 possible logical host addresses. Of these, 256 are reserved for assignment to well-known functions. Assignments for well-known functions are made by Joyce Reynolds. Assignments for other logical host addresses are made by the NIC.

#### Logical Address Assignments:

| Decimal | Description           | References |
|---------|-----------------------|------------|
| -----   | -----                 | -----      |
| 0       | Reserved              | [JBP]      |
| 1       | The BBN Core Gateways | [MB]       |
| 2-254   | Unassigned            | [JBP]      |
| 255     | Reserved              | [JBP]      |

### ARPANET LINK NUMBERS

The word "link" here refers to a field in the original ARPANET Host/IMP interface leader. The link was originally defined as an 8-bit field. Later specifications defined this field as the "message-id" with a length of 12 bits. The name link now refers to the high order 8 bits of this 12-bit message-id field. The Host/IMP interface is defined in BBN Report 1822 [2].

The low-order 4 bits of the message-id field are called the sub-link. Unless explicitly specified otherwise for a particular protocol, there is no sender to receiver significance to the sub-link. The sender may use the sub-link in any way he chooses (it is returned in the RFNM by the destination IMP), the receiver should ignore the sub-link.

#### Link Assignments:

| Decimal | Description                      | References  |
|---------|----------------------------------|-------------|
| -----   | -----                            | -----       |
| 0       | Reserved                         | [JBP]       |
| 1-149   | Unassigned                       | [JBP]       |
| 150     | Xerox NS IDP                     | [102,XEROX] |
| 151     | Unassigned                       | [JBP]       |
| 152     | PARC Universal Protocol          | [7,XEROX]   |
| 153     | TIP Status Reporting             | [JGH]       |
| 154     | TIP Accounting                   | [JGH]       |
| 155     | Internet Protocol [regular]      | [80,JBP]    |
| 156-158 | Internet Protocol [experimental] | [80,JBP]    |
| 159     | Figleaf Link                     | [JBW1]      |
| 160-194 | Unassigned                       | [JBP]       |
| 195     | ISO-IP                           | [52,RXM]    |
| 196-247 | Experimental Protocols           | [JBP]       |
| 248-255 | Network Maintenance              | [JGH]       |

### IEEE 802 NUMBERS OF INTEREST

Some of the networks of all classes are IEEE 802 Networks. These systems may use a Link Service Access Point (LSAP) field in much the same way the ARPANET uses the "link" field. Further, there is an extension of the LSAP header called the Sub-Network Access Protocol (SNAP).

The IEEE likes to describe numbers in binary in bit transmission order, which is the opposite of the big-endian order used throughout the Internet protocol documentation.

#### Assignments:

| Link Service Access Point |                    |         | Description            | References |
|---------------------------|--------------------|---------|------------------------|------------|
| IEEE<br>binary            | Internet<br>binary | decimal |                        |            |
| 00000000                  | 00000000           | 0       | Null LSAP              | [IEEE]     |
| 01000000                  | 00000010           | 2       | Indiv LLC Sublayer Mgt | [IEEE]     |
| 11000000                  | 00000011           | 3       | Group LLC Sublayer Mgt | [IEEE]     |
| 00100000                  | 00000100           | 4       | SNA Path Control       | [IEEE]     |
| 01100000                  | 00000110           | 6       | DOD IP                 | [79,JBP]   |
| 01110000                  | 00001110           | 14      | PROWAY-LAN             | [IEEE]     |
| 01110010                  | 01001110           | 78      | EIA-RS 511             | [IEEE]     |
| 01110001                  | 10001110           | 142     | PROWAY-LAN             | [IEEE]     |
| 01010101                  | 10101010           | 170     | SNAP                   | [IEEE]     |
| 01111111                  | 11111110           | 254     | ISO DIS 8473           | [52,JXJ]   |
| 11111111                  | 11111111           | 255     | Global DSAP            | [IEEE]     |

These numbers (and others) are assigned by the IEEE Standards Office. The address is: IEEE Standards Office, 345 East 47th Street, New York, N.Y. 10017, Attn: Vince Condello. Phone: (212) 705-7092.

At an ad hoc special session on "IEEE 802 Networks and ARP", held during the TCP Vendors Workshop (August 1986), an approach to a consistent way to send DoD-IP datagrams and other IP related protocols on 802 networks was developed.

Due to some evolution of the IEEE 802.2 standards and the need to provide for a standard way to do additional DoD-IP related protocols (such as the Address Resolution Protocol (ARP) on IEEE 802 network, the following new policy is established, which will replace the old policy (see RFC 960 and RFC 948 [108]).

The new policy is for the Internet community to use the IEEE 802.2 encapsulation on 802.3, 802.4, and 802.5 networks by using the SNAP with an organization code indicating that the following 16 bits specify the EtherType code (where IP = 2048 (0800 hex), see Ethernet Numbers of Interest).

Header

```
...-----+-----+-----+
MAC Header|      Length      |                               802.{3/4/5} MAC
...-----+-----+-----+

+-----+-----+-----+
| Dsap=K1| Ssap=K1| control|                               802.2 SAP
+-----+-----+-----+

+-----+-----+-----+-----+-----+
|protocol id or org code =K2|      Ether Type      |                               802.2 SNAP
+-----+-----+-----+-----+-----+
```

The total length of the SAP Header and the SNAP header is 8-octets, making the 802.2 protocol overhead come out on a nice boundary.

K1 is 170. The IEEE likes to talk about things in little-endian bit transmission order and specifies this value as 01010101. In big-endian order, as used in Internet specifications, this becomes 10101010 binary, or AA hex, or 170 decimal.

K2 is 0 (zero).

The use of the IP LSAP (K1 = 6) is to be phased out as quickly as possible.

# ETHERNET NUMBERS OF INTEREST

Many of the networks of all classes are Ethernets (10Mb) or Experimental Ethernets (3Mb). These systems use a message "type" field in much the same way the ARPANET uses the "link" field.

If you need an Ethernet type, contact the XEROX Corporation, 2300 Geng Road, Palo Alto, California 94303, ATTN: Ms. Pam Cance.

## Assignments:

| Ethernet |      | Exp. Ethernet |       | Description                    | References  |
|----------|------|---------------|-------|--------------------------------|-------------|
| -----    |      | -----         |       | -----                          | -----       |
| decimal  | Hex  | decimal       | octal |                                |             |
| 512      | 0200 | 512           | 1000  | XEROX PUP                      | [7,XEROX]   |
| 513      | 0201 | -             | -     | PUP Addr. Trans.               | [XEROX]     |
| 1536     | 0600 | 1536          | 3000  | XEROX NS IDP                   | [102,XEROX] |
| 2048     | 0800 | 513           | 1001  | DOD IP                         | [80,JBP]    |
| 2049     | 0801 | -             | -     | X.75 Internet                  | [XEROX]     |
| 2050     | 0802 | -             | -     | NBS Internet                   | [XEROX]     |
| 2051     | 0803 | -             | -     | ECMA Internet                  | [XEROX]     |
| 2052     | 0804 | -             | -     | Chaosnet                       | [XEROX]     |
| 2053     | 0805 | -             | -     | X.25 Level 3                   | [XEROX]     |
| 2054     | 0806 | -             | -     | ARP                            | [64,JBP]    |
| 2055     | 0807 | -             | -     | XNS Compatability              | [XEROX]     |
| 2076     | 081C | -             | -     | Symbolics Private              | [DCP1]      |
| 4096     | 1000 | -             | -     | Berkeley Trailer               | [XEROX]     |
| 5632     | 1600 | -             | -     | Valid                          | [XEROX]     |
| 21000    | 5208 | -             | -     | BBN Simnet                     | [XEROX]     |
| 24577    | 6001 | -             | -     | DEC MOP Dump/Load              | [XEROX]     |
| 24578    | 6002 | -             | -     | DEC MOP Remote Console         | [XEROX]     |
| 24579    | 6003 | -             | -     | DEC DECNET Phase IV            | [XEROX]     |
| 24580    | 6004 | -             | -     | DEC LAT                        | [XEROX]     |
| 24581    | 6005 | -             | -     | DEC                            | [XEROX]     |
| 24582    | 6006 | -             | -     | DEC                            | [XEROX]     |
| 32771    | 8003 | -             | -     | Cronus VLN                     | [100,DT15]  |
| 32772    | 8004 | -             | -     | Cronus Direct                  | [100,DT15]  |
| 32773    | 8005 | -             | -     | HP Probe                       | [XEROX]     |
| 32774    | 8006 | -             | -     | Nestar                         | [XEROX]     |
| 32784    | 8010 | -             | -     | Excelan                        | [XEROX]     |
| 32821    | 8035 | -             | -     | Reverse ARP                    | [40,JXM]    |
| 32824    | 8038 | -             | -     | DEC LANBridge                  | [XEROX]     |
| 32859    | 805B | -             | -     | Stanford V Kernel experimental |             |
| [XEROX]  |      |               |       |                                |             |
| 32860    | 805C | -             | -     | Stanford V Kernel production   |             |
| [XEROX]  |      |               |       |                                |             |
| 32892    | 807C | -             | -     | Merit Internodal               | [HWB]       |
| 32923    | 809B | -             | -     | Appletalk                      | [XEROX]     |

36864 9000 - - Loopback [XEROX]

The standard for transmission of IP datagrams over Ethernets and Experimental Ethernets is specified in RFC 894 [50] and RFC 895 [66] respectively.

NOTE: Ethernet 48-bit address blocks are now assigned by the IEEE.

IEEE Standards Office, 345 East 47th Street, New York, N.Y. 10017,  
Attn: Vince Condello. Phone: (212) 705-7092.

#### ADDRESS RESOLUTION PROTOCOL PARAMETERS

The Address Resolution Protocol (ARP) specified in RFC 826 [64] has several parameters. The assigned values for these parameters are listed here.

##### Assignments:

###### Operation Code (op)

- 1 REQUEST
- 2 REPLY

###### Hardware Type (hrd)

| Type | Description                 | References |
|------|-----------------------------|------------|
| ---- | -----                       | -----      |
| 1    | Ethernet (10Mb)             | [JBP]      |
| 2    | Experimental Ethernet (3Mb) | [JBP]      |
| 3    | Amateur Radio AX.25         | [PXK]      |
| 4    | Proteon ProNET Token Ring   | [JBP]      |
| 5    | Chaos                       | [GXP]      |
| 6    | IEEE 802 Networks           | [JBP]      |
| 7    | ARCNET                      | [JBP]      |

###### Protocol Type (pro)

Use the same codes as listed in the section called "Ethernet Numbers of Interest" (all hardware types use this code set for the protocol type).



# PUBLIC DATA NETWORK NUMBERS

One of the Internet Class A Networks is the international system of Public Data Networks. This section lists the mapping between the Internet Addresses and the Public Data Network Addresses (X.121).

The numbers below are assigned for networks that are connected to the Internet, and for independent networks. These independent networks are marked with an asterisk preceding the number.

## Assignments:

| * Internet                      | Public Data Net   | Description  | References |
|---------------------------------|-------------------|--------------|------------|
| -----                           | -----             | -----        | -----      |
| 014.000.000.000                 |                   | Reserved     | [JBP]      |
| 014.000.000.001                 | 3110-317-00035 00 | PURDUE-TN    | [CAK]      |
| 014.000.000.002                 | 3110-608-00027 00 | UWISC-TN     | [CAK]      |
| 014.000.000.003                 | 3110-302-00024 00 | UDEL-TN      | [CAK]      |
| 014.000.000.004                 | 2342-192-00149 23 | UCL-VTEST    | [PK]       |
| 014.000.000.005                 | 2342-192-00300 23 | UCL-TG       | [PK]       |
| 014.000.000.006                 | 2342-192-00300 25 | UK-SATNET    | [PK]       |
| 014.000.000.007                 | 3110-608-00024 00 | UWISC-IBM    | [MAS3]     |
| 014.000.000.008                 | 3110-213-00045 00 | RAND-TN      | [MO2]      |
| 014.000.000.009                 | 2342-192-00300 23 | UCL-CS       | [PK]       |
| 014.000.000.010                 | 3110-617-00025 00 | BBN-VAN-GW   | [JD21]     |
| *014.000.000.011                | 2405-015-50300 00 | CHALMERS     | [UXB]      |
| 014.000.000.012                 | 3110-713-00165 00 | RICE         | [PAM6]     |
| 014.000.000.013                 | 3110-415-00261 00 | DECWRL       | [PAM6]     |
| 014.000.000.014                 | 3110-408-00051 00 | IBM-SJ       | [SA1]      |
| 014.000.000.015                 | 2041-117-01000 00 | SHAPE        | [JFW]      |
| 014.000.000.016                 | 2628-153-90075 00 | DFVLR4-X25   | [GB7]      |
| 014.000.000.017                 | 3110-213-00032 00 | ISI-VAN-GW   | [JD21]     |
| 014.000.000.018                 | 2624-522-80900 52 | DFVLR5-X25   | [GB7]      |
| 014.000.000.019                 | 2041-170-10000 00 | SHAPE-X25    | [JFW]      |
| 014.000.000.020                 | 5052-737-20000 50 | UQNET        | [AXH]      |
| 014.000.000.021                 | 3020-801-00057 50 | DMC-CRC1     | [JR17]     |
| 014.000.000.022                 | 2624-522-80902 77 | DFVLRVAX-X25 | [GB7]      |
| *014.000.000.023                | 2624-589-00908 01 | ECRC-X25     | [PXD]      |
| 014.000.000.024                 | 2342-905-24242 83 | UK-MOD-RSRE  | [JXE2]     |
| 014.000.000.025                 | 2342-905-24242 82 | UK-VAN-RSRE  | [AXM]      |
| 014.000.000.026-014.255.255.254 |                   | Unassigned   | [JBP]      |
| 014.255.255.255                 |                   | Reserved     | [JBP]      |

The standard for transmission of IP datagrams over the Public Data Network is specified in RFC 877 [55].

## TELNET OPTIONS

The Telnet Protocol has a number of options that may be negotiated. These options are listed here. "Official Internet Protocols" [91] provides more detailed information.

| Options | Name                               | References  |
|---------|------------------------------------|-------------|
| -----   | -----                              | -----       |
| 0       | Binary Transmission                | [ 85,JBP]   |
| 1       | Echo                               | [ 86,JBP]   |
| 2       | Reconnection                       | [ 33,JBP]   |
| 3       | Suppress Go Ahead                  | [ 89,JBP]   |
| 4       | Approx Message Size Negotiation    | [102,JBP]   |
| 5       | Status                             | [ 88,JBP]   |
| 6       | Timing Mark                        | [ 90,JBP]   |
| 7       | Remote Controlled Trans and Echo   | [ 82,JBP]   |
| 8       | Output Line Width                  | [ 31,JBP]   |
| 9       | Output Page Size                   | [ 32,JBP]   |
| 10      | Output Carriage-Return Disposition | [ 21,JBP]   |
| 11      | Output Horizontal Tab Stops        | [ 25,JBP]   |
| 12      | Output Horizontal Tab Disposition  | [ 24,JBP]   |
| 13      | Output Formfeed Disposition        | [ 22,JBP]   |
| 14      | Output Vertical Tabstops           | [ 27,JBP]   |
| 15      | Output Vertical Tab Disposition    | [ 26,JBP]   |
| 16      | Output Linefeed Disposition        | [ 23,JBP]   |
| 17      | Extended ASCII                     | [104,JBP]   |
| 18      | Logout                             | [ 18,MRC]   |
| 19      | Byte Macro                         | [ 28,JBP]   |
| 20      | Data Entry Terminal                | [ 30,JBP]   |
| 22      | SUPDUP                             | [19,20,MRC] |
| 22      | SUPDUP Output                      | [ 43,MRC]   |
| 23      | Send Location                      | [ 54,EAK1]  |
| 24      | Terminal Type                      | [ 97,MAS3]  |
| 25      | End of Record                      | [ 78,JBP]   |
| 26      | TACACS User Identification         | [ 1,BA4]    |
| 27      | Output Marking                     | [ 94,SXS]   |
| 28      | Terminal Location Number           | [ 62,RN6]   |
| 255     | Extended-Options-List              | [ 84,JBP]   |

## MACHINE NAMES

These are the Official Machine Names as they appear in the NIC Host Table. Their use is described in RFC 810 [39].

A machine name or CPU type may be up to 40 characters taken from the set of uppercase letters, digits, and the two punctuation characters hyphen and slash. It must start with a letter, and end with a letter or digit.

ALTO  
AMDAHL-V7  
APOLLO  
ATT-3B20  
BBN-C/60  
BURROUGHS-B/29  
BURROUGHS-B/4800  
BUTTERFLY  
C/30  
C/70  
CADLINC  
CADR  
CDC-170  
CDC-170/750  
CDC-173  
CELERITY-1200  
COMTEN-3690  
CP8040  
CRAY-1  
CRAY-X/MP  
CRAY-2  
CTIWS-117  
DANDELION  
DEC-10  
DEC-1050  
DEC-1077  
DEC-1080  
DEC-1090  
DEC-1090B  
DEC-1090T  
DEC-2020T  
DEC-2040  
DEC-2040T  
DEC-2050T  
DEC-2060  
DEC-2060T  
DEC-2065  
DEC-FALCON

DEC-KS10  
DORADO  
DPS8/70M  
ELXSI-6400  
FOONLY-F2  
FOONLY-F3  
FOONLY-F4  
GOULD  
GOULD-6050  
GOULD-6080  
GOULD-9050  
GOULD-9080  
H-316  
H-60/68  
H-68  
H-68/80  
H-89  
HONEYWELL-DPS-6  
HONEYWELL-DPS-8/70  
HP3000  
HP3000/64  
IBM-158  
IBM-360/67  
IBM-370/3033  
IBM-3081  
IBM-3084QX  
IBM-3101  
IBM-4331  
IBM-4341  
IBM-4361  
IBM-4381  
IBM-4956  
IBM-PC  
IBM-PC/AT  
IBM-PC/XT  
IBM-SERIES/1  
IMAGEN  
IMAGEN-8/300  
IMSAI  
INTEGRATED-SOLUTIONS  
INTEGRATED-SOLUTIONS-68K  
INTEGRATED-SOLUTIONS-CREATOR  
INTEGRATED-SOLUTIONS-CREATOR-8  
INTEL-IPSC  
IS-1  
IS-68010  
LMI  
LSI-11

LSI-11/2  
LSI-11/23  
LSI-11/73  
M68000  
MASSCOMP  
MC500  
MC68000  
MICROVAX  
MICROVAX-I  
MV/8000  
NAS3-5  
NCR-COMTEN-3690  
NOW  
ONYX-Z8000  
PDP-11  
PDP-11/3  
PDP-11/23  
PDP-11/24  
PDP-11/34  
PDP-11/40  
PDP-11/44  
PDP-11/45  
PDP-11/50  
PDP-11/70  
PDP-11/73  
PE-7/32  
PE-3205  
PERQ  
PLEXUS-P/60  
PLI  
PLURIBUS  
PRIME-2350  
PRIME-2450  
PRIME-2755  
PRIME-9655  
PRIME-9755  
PRIME-9955II  
PRIME-2250  
PRIME-2655  
PRIME-9955  
PRIME-9950  
PRIME-9650  
PRIME-9750  
PRIME-2250  
PRIME-750  
PRIME-850  
PRIME-550II  
PYRAMID-90

PYRAMID-90MX  
PYRAMID-90X  
RIDGE  
RIDGE-32  
RIDGE-32C  
ROLM-1666  
S1-MKIIA  
SMI  
SEQUENT-BALANCE-8000  
SIEMENS  
SILICON-GRAPHICS  
SILICON-GRAPHICS-IRIS  
SPERRY-DCP/10  
SUN  
SUN-2  
SUN-2/50  
SUN-2/100  
SUN-2/120  
SUN-2/140  
SUN-2/150  
SUN-2/160  
SUN-2/170  
SUN-3/160  
SUN-3/50  
SUN-3/75  
SUN-3/110  
SUN-50  
SUN-100  
SUN-120  
SUN-130  
SUN-150  
SUN-170  
SUN-68000  
SYMBOLICS-3600  
SYMBOLICS-3670  
TANDEM-TXP  
TEK-6130  
TI-EXPLORER  
TP-4000  
TRS-80  
UNIVAC-1100  
UNIVAC-1100/60  
UNIVAC-1100/62  
UNIVAC-1100/63  
UNIVAC-1100/64  
UNIVAC-1100/70  
UNIVAC-1160  
VAX-11/725

VAX-11/730  
VAX-11/750  
VAX-11/780  
VAX-11/785  
VAX-11/790  
VAX-11/8600  
VAX-8600  
WANG-PC002  
WANG-VS100  
WANG-VS400  
XEROX-1108  
XEROX-8010

## SYSTEM NAMES

These are the Official System Names as they appear in the NIC Host Table. Their use is described in RFC 810 [39].

A system name may be up to 40 characters taken from the set of uppercase letters, digits, and the two punctuation characters hyphen and slash. It must start with a letter, and end with a letter or digit.

AEGIS  
APOLLO  
BS-2000  
CEDAR  
CGW  
CHRYSALIS  
CMOS  
CMS  
COS  
CPIX  
CTOS  
CTSS  
DCN  
DDNOS  
DOMAIN  
EDX  
ELF  
EMBOS  
EMMOS  
EPOS  
FOONEX  
FUZZ  
GCOS  
GPOS  
HDOS  
IMAGEN  
INTERCOM  
IMPRESS  
INTERLISP  
IOS  
ITS  
LISP  
LISPM  
LOCUS  
MINOS  
MOS  
MPE5  
MSDOS



MULTICS  
MVS  
MVS/SP  
NEXUS  
NMS  
NONSTOP  
NOS-2  
OS/DDP  
OS4  
OS86  
OSX  
PCDOS  
PERQ/OS  
PLI  
PSDOS/MIT  
PRIMOS  
RMX/RDOS  
ROS  
RSX11M  
SATOPS  
SCS  
SIMP  
SWIFT  
TAC  
TANDEM  
TENEX  
TOPS10  
TOPS20  
TP3010  
TRSDOS  
ULTRIX  
UNIX  
UT2D  
V  
VM  
VM/370  
VM/CMS  
VM/SP  
VMS  
VMS/EUNICE  
VRTX  
WAITS  
WANG  
XDE  
XENIX

## PROTOCOL AND SERVICE NAMES

These are the Official Protocol Names. Their use is described in greater detail in RFC 810 [39].

A protocol or service may be up to 40 characters taken from the set of uppercase letters, digits, and the punctuation character hyphen. It must start with a letter, and end with a letter or digit.

|             |  |
|-------------|--|
| ARGUS       | - ARGUS Protocol                           |
| AUTH        | - Authentication Service                   |
| BBN-RCC-MON | - BBN RCC Monitoring                       |
| BL-IDM      | - Britton Lee Intelligent Database Machine |
| BOOTPC      | - Bootstrap Protocol Client                |
| BOOTPS      | - Bootstrap Protocol Server                |
| BR-SAT-MON  | - Backroom SATNET Monitoring               |
| CFTP        | - CFTP                                     |
| CHAOS       | - CHAOS Protocol                           |
| CHARGEN     | - Character Generator Protocol             |
| CISCO-FNA   | - CISCO FNATIVE                            |
| CISCO-TNA   | - CISCO TNATIVE                            |
| CISCO-SYS   | - CISCO SYSMANT                            |
| CLOCK       | - DCNET Time Server Protocol               |
| COOKIE-JAR  | - Cookie Jar Authentication Procedure      |
| CSNET-NS    | - CSNET Mailbox Nameserver Protocol        |
| DAYTIME     | - Daytime Protocol                         |
| DCN-MEAS    | - DCN Measurement Subsystems Protocol      |
| DCP         | - Device Control Protocol                  |
| DISCARD     | - Discard Protocol                         |
| DOMAIN      | - Domain Name Server                       |
| ECHO        | - Echo Protocol                            |
| EGP         | - Exterior Gateway Protocol                |
| EMCON       | - Emission Control Protocol                |
| EMFIS-CNTL  | - EMFIS Control Service                    |
| EMFIS-DATA  | - EMFIS Data Service                       |
| FINGER      | - Finger Protocol                          |
| FTP         | - File Transfer Protocol                   |
| FTP-DATA    | - File Transfer Protocol Data              |
| GGP         | - Gateway Gateway Protocol                 |
| GRAPHICS    | - Graphics Protocol                        |
| HMP         | - Host Monitoring Protocol                 |
| HOST2-NS    | - Host2 Name Server                        |
| HOSTNAME    | - Hostname Protocol                        |
| ICMP        | - Internet Control Message Protocol        |
| IGMP        | - Internet Group Management Protocol       |
| IGP         | - Interior Gateway Protocol                |
| INGRES-NET  | - INGRES-NET Service                       |
| IP          | - Internet Protocol                        |

|             |   |
|-------------|---|
| IPCU        | - Internet Packet Core Utility                |
| IPPC        | - Internet Pluribus Packet Core               |
| IRTP        | - Internet Reliable Transaction Protocol      |
| ISI-GL      | - ISI Graphics Language Protocol              |
| ISO-TP4     | - ISO Transport Protocol Class 4              |
| ISO-TSAP    | - ISO TSAP                                    |
| LA-MAINT    | - IMP Logical Address Maintenance             |
| LEAF-1      | - Leaf-1 Protocol                             |
| LEAF-2      | - Leaf-2 Protocol                             |
| LINK        | - Link Protocol                               |
| LOC-SRV     | - Location Service                            |
| LOGIN       | - Login Host Protocol                         |
| MERIT-INP   | - MERIT Internodal Protocol                   |
| METAGRAM    | - Metagram Relay                              |
| MIT-ML-DEV  | - MIT ML Device                               |
| MFE-NSP     | - MFE Network Services Protocol               |
| MIT-SUBNET  | - MIT Subnet Support                          |
| MIT-DOV     | - MIT Dover Spooler                           |
| MPM         | - Internet Message Protocol (Multimedia Mail) |
| MPM-FLAGS   | - MPM Flags Protocol                          |
| MPM-SND     | - MPM Send Protocol                           |
| MSG-AUTH    | - MSG Authentication Protocol                 |
| MSG-ICP     | - MSG ICP Protocol                            |
| MUX         | - Multiplexing Protocol                       |
| NAMESERVER  | - Host Name Server                            |
| NETBIOS-DGM | - NETBIOS Datagram Service                    |
| NETBIOS-NS  | - NETBIOS Name Service                        |
| NETBIOS-SSN | - NETBIOS Session Service                     |
| NETBLT      | - Bulk Data Transfer Protocol                 |
| NETED       | - Network Standard Text Editor                |
| NETRJS      | - Remote Job Service                          |
| NI-FTP      | - NI File Transfer Protocol                   |
| NI-MAIL     | - NI Mail Protocol                            |
| NICNAME     | - Who Is Protocol                             |
| NSW-FE      | - NSW User System Front End                   |
| NTP         | - Network Time Protocol                       |
| NVP-II      | - Network Voice Protocol                      |
| POP2        | - Post Office Protocol - Version 2            |
| PRM         | - Packet Radio Measurement                    |
| PUP         | - PUP Protocol                                |
| PWDGEN      | - Password Generator Protocol                 |
| QUOTE       | - Quote of the Day Protocol                   |
| RDP         | - Reliable Data Protocol                      |
| RJE         | - Remote Job Entry                            |
| RLP         | - Resource Location Protocol                  |
| RTELNET     | - Remote Telnet Service                       |
| RVD         | - Remote Virtual Disk Protocol                |
| SAT-EXPAK   | - Satnet and Backroom EXPAK                   |

|           |                                      |
|-----------|--------------------------------------|
| SAT-MON   | - SATNET Monitoring                  |
| SEP       | - Sequential Exchange Protocol       |
| SFTP      | - Simple File Transfer Protocol      |
| SMTP      | - Simple Mail Transfer Protocol      |
| ST        | - Stream Protocol                    |
| STATSRV   | - Statistics Service                 |
| SU-MIT-TG | - SU/MIT Telnet Gateway Protocol     |
| SUNRPC    | - SUN Remote Procedure Call          |
| SUPDUP    | - SUPDUP Protocol                    |
| SUR-MEAS  | - Survey Measurement                 |
| SWIFT-RVF | - Remote Virtual File Protocol       |
| TACACS-DS | - TACACS-Database Service            |
| TACNEWS   | - TAC News                           |
| TCP       | - Transmission Control Protocol      |
| TELNET    | - Telnet Protocol                    |
| TFTP      | - Trivial File Transfer Protocol     |
| TIME      | - Time Server Protocol               |
| TRUNK-1   | - Trunk-1 Protocol                   |
| TRUNK-2   | - Trunk-2 Protocol                   |
| UCL       | - University College London Protocol |
| UDP       | - User Datagram Protocol             |
| NNTP      | - Network News Transfer Protocol     |
| USERS     | - Active Users Protocol              |
| UUCP-PATH | - UUCP Path Service                  |
| VIA-FTP   | - VIA Systems-File Transfer Protocol |
| WB-EXPAK  | - Wideband EXPAK                     |
| WB-MON    | - Wideband Monitoring                |
| XNET      | - Cross Net Debugger                 |
| XNS-IDP   | - Xerox NS IDP                       |

#### TERMINAL TYPE NAMES

These are the Official Terminal Type Names. Their use is described in RFC 930 [97]. The maximum length of a name is 40 characters.

A terminal names may be up to 40 characters taken from the set of uppercase letters, digits, and the two punctuation characters hyphen and slash. It must start with a letter, and end with a letter or digit.

ADDS-CONSUL-980  
ADDS-REGENT-100  
ADDS-REGENT-20  
ADDS-REGENT-200  
ADDS-REGENT-25  
ADDS-REGENT-40  
ADDS-REGENT-60  
AMPEX-DIALOGUE-80  
ANDERSON-JACOBSON-630  
ANDERSON-JACOBSON-832  
ANDERSON-JACOBSON-841  
ANN-ARBOR-AMBASSADOR  
ARDS  
BITGRAPH  
BUSSIPLEXER  
CALCOMP-565  
CDC-456  
CDI-1030  
CDI-1203  
CLNZ  
COMPUCOLOR-II  
CONCEPT-100  
CONCEPT-104  
CONCEPT-108  
DATA-100  
DATA-GENERAL-6053  
DATAGRAPHIX-132A  
DATAMEDIA-1520  
DATAMEDIA-1521  
DATAMEDIA-2500  
DATAMEDIA-3025  
DATAMEDIA-3025A  
DATAMEDIA-3045  
DATAMEDIA-3045A  
DATAMEDIA-DT80/1  
DATAPOINT-2200  
DATAPOINT-3000  
DATAPOINT-3300

DATAPOINT-3360  
DEC-DECWRITER-I  
DEC-DECWRITER-II  
DEC-GT40  
DEC-GT40A  
DEC-GT42  
DEC-LA120  
DEC-LA30  
DEC-LA36  
DEC-LA38  
DEC-VT05  
DEC-VT100  
DEC-VT132  
DEC-VT50  
DEC-VT50H  
DEC-VT52  
DELTA-DATA-5000  
DELTA-TELTERM-2  
DIABLO-1620  
DIABLO-1640  
DIGILOG-333  
DTC-300S  
EDT-1200  
EXECUPORT-4000  
EXECUPORT-4080  
GENERAL-TERMINAL-100A  
GSI  
HAZELTINE-1500  
HAZELTINE-1510  
HAZELTINE-1520  
HAZELTINE-2000  
HP-2621  
HP-2621A  
HP-2621P  
HP-2626  
HP-2626A  
HP-2626P  
HP-2640  
HP-2640A  
HP-2640B  
HP-2645  
HP-2645A  
HP-2648  
HP-2648A  
HP-2649  
HP-2649A  
IBM-3101  
IBM-3101-10

IBM-3275-2  
IBM-3276-2  
IBM-3276-3  
IBM-3276-4  
IBM-3277-2  
IBM-3278-2  
IBM-3278-3  
IBM-3278-4  
IBM-3278-5  
IBM-3279-2  
IBM-3279-3  
IMLAC  
INFOTON-100  
INFOTONKAS  
ISC-8001  
LSI-ADM-3  
LSI-ADM-31  
LSI-ADM-3A  
LSI-ADM-42  
MEMOREX-1240  
MICROBEE  
MICROTERM-ACT-IV  
MICROTERM-ACT-V  
MICROTERM-MIME-1  
MICROTERM-MIME-2  
NETRONICS  
NETWORK-VIRTUAL-TERMINAL  
OMRON-8025AG  
PERKIN-ELMER-1100  
PERKIN-ELMER-1200  
PERQ  
PLASMA-PANEL  
QUME-SPRINT-5  
SOROC  
SOROC-120  
SOUTHWEST-TECHNICAL-PRODUCTS-CT82  
SUPERBEE  
SUPERBEE-III-M  
TEC  
TEKTRONIX-4010  
TEKTRONIX-4012  
TEKTRONIX-4013  
TEKTRONIX-4014  
TEKTRONIX-4023  
TEKTRONIX-4024  
TEKTRONIX-4025  
TEKTRONIX-4027  
TELERAY-1061

TELERAY-3700  
TELERAY-3800  
TELETEC-DATASCREEN  
TELETERM-1030  
TELETYPE-33  
TELETYPE-35  
TELETYPE-37  
TELETYPE-38  
TELETYPE-43  
TELEVIDEO-912  
TELEVIDEO-920  
TELEVIDEO-920B  
TELEVIDEO-920C  
TELEVIDEO-950  
TERMINET-1200  
TERMINET-300  
TI-700  
TI-733  
TI-735  
TI-743  
TI-745  
TYCOM  
UNIVAC-DCT-500  
VIDEO-SYSTEMS-1200  
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VISUAL-200  
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