

Understanding Digital Modem Network Modules on Cisco 3600 and 3700 Series Routers

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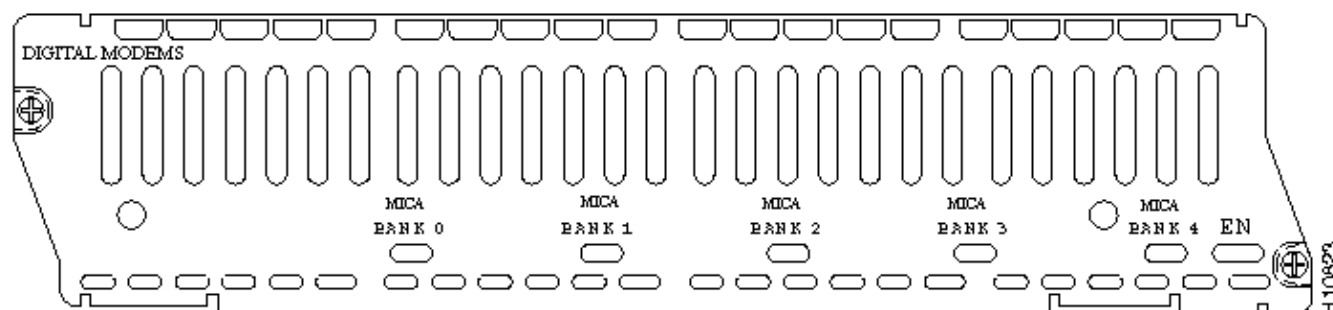
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Introduction

The digital modem network modules significantly enhance the dial access flexibility and scalability of the Cisco 3600 platform series. Each network module supports up to 30 digital modems. The digital modem network modules use either the single or dual T1/E1 network modules to offer support for up to 60 remote modem users (using two NM-DM network modules), at speeds up to 56 Kbps.



Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on digital modem network modules using either the single or dual T1/E1 network modules.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Product Numbers

Here is a table listing the network module product numbers:

Product Number	Description
NM-6DM	Network Module with six Digital Modems installed
NM-12DM	Network Module with 12 Digital Modems installed
NM-18DM	Network Module with 18 Digital Modems installed
NM-24DM	Network Module with 24 Digital Modems installed
NM-30DM	Network Module with 30 Digital Modems installed
MICA-6MOD=	Modem Card with six Modems
MMTL-3600-6	Advanced Modem Management Technology License Six Ports ¹
MMTL-3600-12	Advanced Modem Management Technology License 12 Ports ¹
MMTL-3600-18	Advanced Modem Management Technology License 18 Ports ¹
MMTL-3600-24	Advanced Modem Management Technology License 24 Ports ¹
MMTL-3600-30	Advanced Modem Management Technology License 30 Ports ¹

¹ – Requires Cisco IOS® software plus feature set.

Features

- Includes up to 30 modems in increments of six.
- Supported on the Cisco 3620 with Cisco IOS Version 11.3(4)T1 and later, and on the Fast Ethernet plus T1 Network Modules, or Fast Ethernet Plus E1 Network Modules.
- Field upgraded in increments of six using MICA-6MOD= (same as 6DM=).
- Uses the same MICA modems as AS5300 (**Note:** cannot use the 12 port module).
- Takes analog data calls from T1s, E1s, and Integrated Services Digital Network (ISDN) Basic Rate Interfaces (BRIs) (from BRI network modules, not BRI WAN interface cards [WICs]) and routes them to the modems.

For more details, refer to the Data Sheet.

Feature Support

The table below lists the available features and the software required to support the features.

Feature	Software Required
Support for ISDN BRI voice calls	Cisco IOS Versions 12.0(2)XC, 12.0(3)T and later
56k flex	MICA firmware 2.2 and later
V.90	MICA firmware 2.5.1.0 and Cisco IOS Versions 11.2(16)P or 11.3(5)T and later
Dial-out, fax modem	MICA firmware 2.5.1.0 and Cisco IOS Version 11.3(5)T and later
T1 CAS signaling (channelized T1)	Cisco IOS Version 11.3(3)T and later
R2 signaling (channelized E1)	Cisco IOS Version 12.0(1)T and later
V.110	Cisco IOS Version 12.1(5)T and later

Platform Support

The table below lists the different platforms and the Cisco IOS software versions which support the network modules.

Product Name	Cisco 2600, 2600XM, and 2691	Cisco 3620	Cisco 3631	Cisco 3640	Cisco 3660	Cisco 3725 and 3745
NM-6DM, NM-12DM, NM-18DM, NM-24DM, NM-30DM	Not supported	Cisco IOS Versions 11.3(4)T1, 12.0T, 12.0XK, 12.1, 12.1T, 12.2, and 12.2T	Not supported	Cisco IOS Versions 11.2(9)XA, 11.2(10)P, 11.3(2)T, and all 12.x	Cisco IOS Versions 12.0(7)XK, 12.1T, 12.2, and 12.2T	All Cisco IOS software versions

Note: NM-DM modules are not supported in Cisco IOS Version 12.0 on the Cisco 3620. You must use Cisco IOS Version 12.0T or later.

On-line Insertion and Removal (hot swap) requires Cisco IOS Version 12.1(1)T (supported only on 3660 and 3700 platforms).

Configuration

On the digital modem network modules, the interfaces are addressed as **interface async (line number)**.

Line Numbers

Older versions of Cisco IOS software reserved 16 async line numbers per network module slot. However, when the NM-16A, NM-32A, or digital modems are installed in the Cisco 3600 series, Cisco IOS software will reserve 32 line numbers per slot. This will cause a problem if the NM-16A, NM-32A, or digital modems are installed into a system that already has an async configuration based on 16 line numbers per slot. The aux port will now be line 65 on the Cisco 3620 and line 129 on the Cisco 3640. Use the **show line** command to check the line numbering on the chassis.

```
line number = (<slot> * 32) + <unit> + 1
```

Refer to How Async Lines are Numbered in Cisco 3600 Series Routers for more information.

For a sample configuration, refer to Configuring Modem Connectivity with a Cisco 3640 BRI or Configuring and Managing Integrated Modems. This configuration can be applied to any router with this digital modem network module.

Firmware Upgrade

Refer to MICA Recommended Portware Version and Upgrading the Modem Firmware/Portware in Cisco Routers with Internal Digital Modems for the recommended modem portware version as well as the modem upgrade procedure.

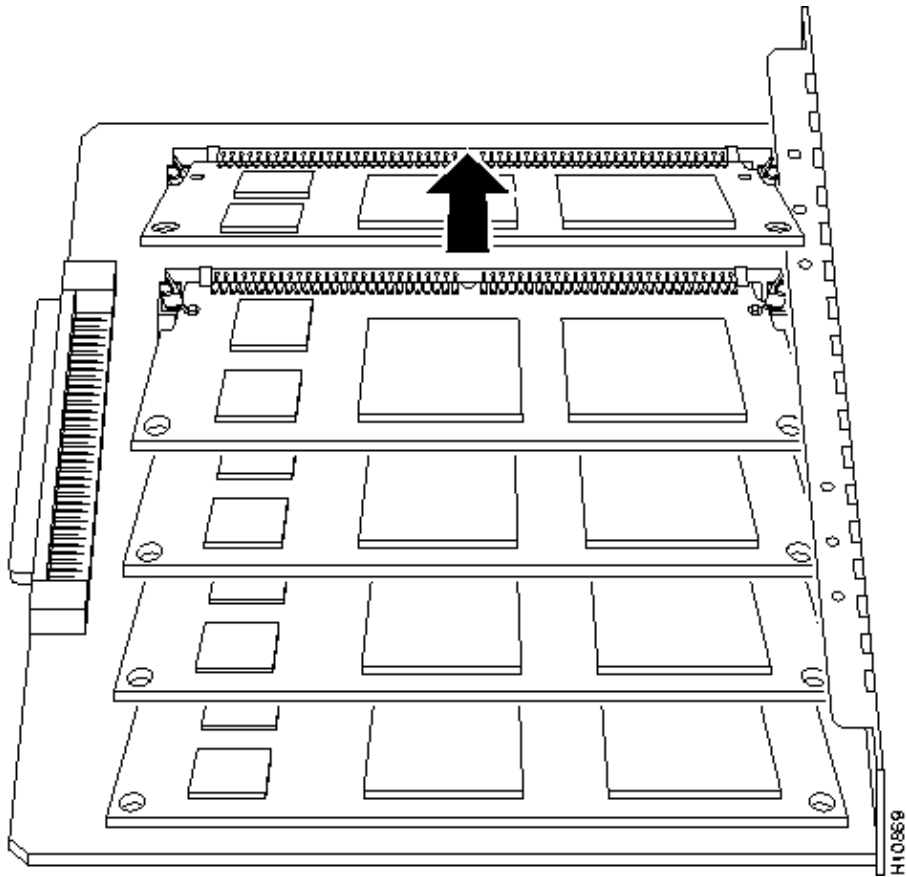
Field Notices

The Field Notices below provide additional information on network modules:

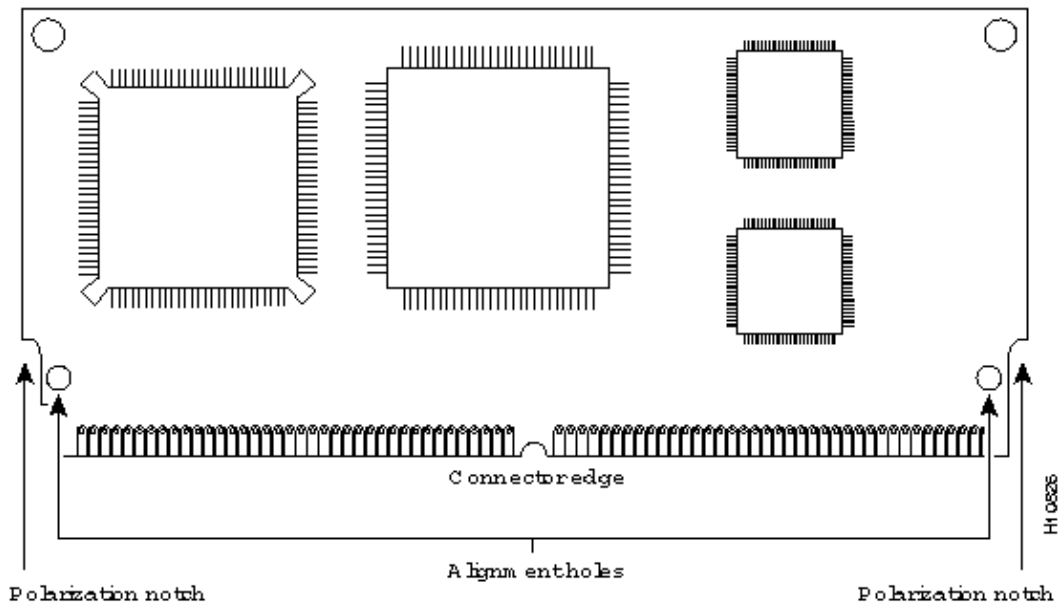
- Field Notice: Cisco 3600 T1/E1 PRI Module Upgrade
- Field Notice: Using Digital Modems with the Cisco 3600 Basic Rate Interface (BRI) Network Module Upgrade

Field Upgrade with MICA-6MOD Modules

Inserting the MICA-6MOD= upgrade into a Digital Modem Network Module



MICA-6MOD=



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Related Information

- **Configuring a Cisco 3600 Router with T1/E1 and Digital Modem Network Modules**
 - **Configuring Modem Connectivity with a Cisco 3640 BRI**
 - **Configuring and Managing Integrated Modems**
 - **AT Command Set and Register Summary for MICA Six-Port Modules**
 - **MICA Modem States and Disconnect Reasons**
 - **MICA Portware Release Notes**
 - **OIR Support for Analog and Digital Modem Network Modules**
 - **Access Products Support**
 - **Technical Support – Cisco Systems**
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