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Tech Notes

# Understanding High Density Voice Network Modules

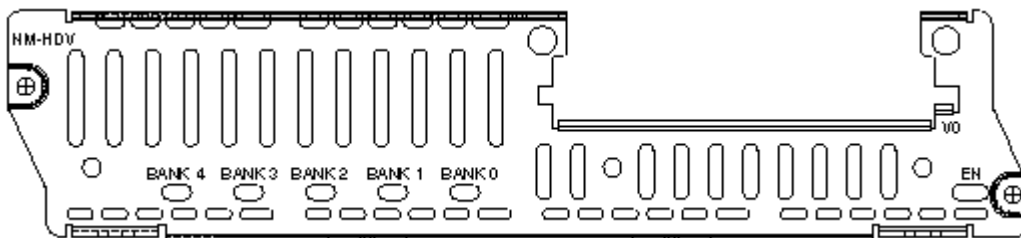
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## Introduction

High Density Voice Network Modules combine WAN Interface Card (WIC) and Voice Interface Card (VIC) functionality to provide unparalleled flexibility and power. The high density voice network module is capable of supporting up to 60 simultaneous mid-complexity voice compression codecs / algorithms.



## Before You Begin

### Conventions

For more information on document conventions, see the [Cisco Technical Tips Conventions](#).

### Prerequisites

There are no specific prerequisites for this document.

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## Components Used

This document is not restricted to specific software and hardware versions.

## Product Numbers

The table below lists the High Density Voice Network Module and corresponding product number.

NM-HDV-1E1-12	High Density Voice Network Module, with 1 <a href="#">VWIC-1MFT-E1</a> and 1 PVDM-12
NM-HDV-1E1-30	High Density Voice Network Module, with 1 <a href="#">VWIC-1MFT-E1</a> and 3 PVDM-12
NM-HDV-1E1-30E	High Density Voice Network Module, with 1 <a href="#">VWIC-1MFT-E1</a> and 5 PVDM-12
NM-HDV-2E1-60	High Density Voice Network Module, with 1 <a href="#">VWIC-2MFT-E1-DI</a> and 5 PVDM-12
NM-HDV-1T1-12	High Density Voice Network Module, with 1 <a href="#">VWIC-1MFT-T1</a> and 1 PVDM-12
NM-HDV-1T1-24	High Density Voice Network Module, with 1 <a href="#">VWIC-1MFT-T1</a> and 2 PVDM-12
NM-HDV-1T1-24E	High Density Voice Network Module, with 1 <a href="#">VWIC-1MFT-T1</a> and 4 PVDM-12
NM-HDV-2T1-48	High Density Voice Network Module, with 1 <a href="#">VWIC-2MFT-T1-DI</a> and 4 PVDM-12
NM-HDV	High Density Voice Network Module (no VWIC, no PVDMs)
PVDM-12	12-Channel Packet Voice DSP Module

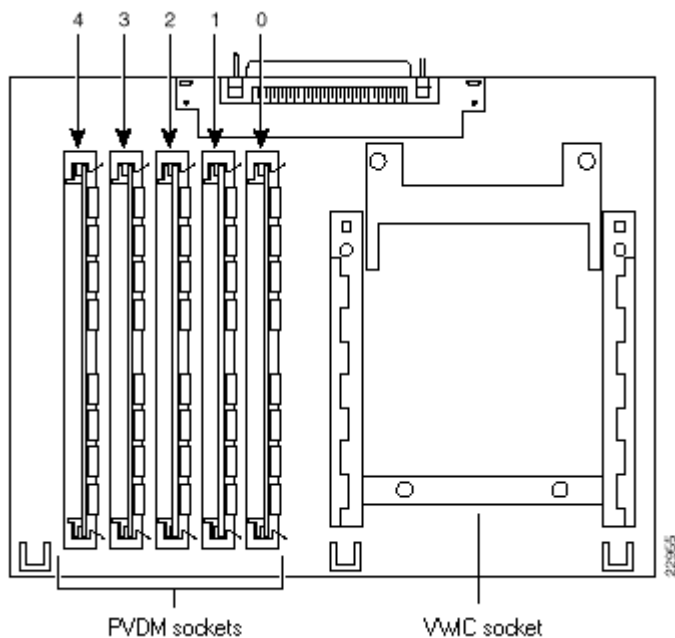
## Features

The features of High Density Voice Network Modules are explained below.

Signaling	Minimum Cisco IOS® Required
T1 CAS	12.0(5)XK, 12.0(7)T, 12.1(1), 12.1(1)T
T1 ISDN PRI Q.SIG and Q.931	12.1(2)XH, 12.1(3)T
E1 ISDN PRI Q.SIG	12.0(7)XK, 12.1(2)T
E1 ISDN Q.931	12.1(2)XH, 12.1(3)T
E1 R2	12.1(2)XH, 12.1(3)T

- Supports 1 or 2 T1 or E1 interfaces
- Uses VWICs to supply physical interface [[1 and 2 Port T1 Multi-Flex Trunk VWIC](#)] [[1 and 2 Port E1 Multi-Flex Trunk VWIC](#)]
- Each PVDM-12 contains 3 TI 549 DSPs
  - Runs up to twelve voice calls using a medium complexity CODEC (G.711, G.729a/b, G.726, fax).
  - Runs up to six voice calls using a high complexity CODEC (G.729, G.728, G.723.1).
  - PVDM-12 fits into SIMM sockets on the NM-1HDV network module
  - Five PVDM SIMM sockets on the NM-1HDV network module

### High Density Network Module Top View

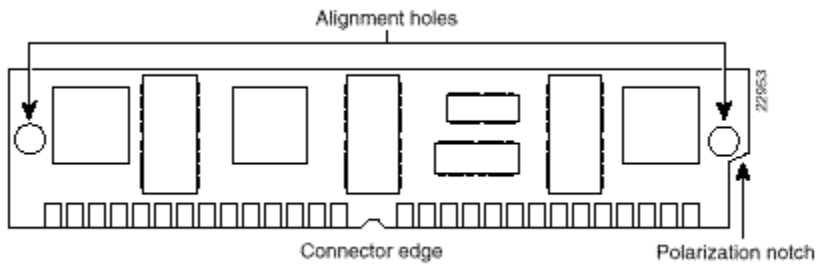


DSP IDs on the NM-HDV PVDM-12 (Packet Voice DSP Module) When configuring ds0-group or pri-group, the timeslots are assigned DSP channels dynamically. The ID of the DSPs is as follows:

- The DSPs on the PVDM-12 on SIMM socket 4 have an id=0,1,2
- The DSPs on the PVDM-12 on SIMM socket 3 have an id=3,4,5
- The DSPs on the PVDM-12 on SIMM socket 2 have an id=6,7,8
- The DSPs on the PVDM-12 on SIMM socket 1 have an id=9,10,11
- The DSPs on the PVDM-12 on SIMM socket 0 have an id=12,13,14

Use the **show voice dsp** command to view DSP ID information.

### PVDM (Packet Voice DSP Module)



## Platform Support

The table below outlines the platform support

IOS Support <sup>1</sup>	VG200	2600	2600XM	3620, 3640	3631	3660	2691, 3725, 3745	Catalyst 4000 WS- X4604 AGM
NM- HDV- 1E1-12		12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	12.2(8) T1	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	Not Supported	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	All IOS Versions	
NM- HDV- 1E1-30	12.1(5) XM1	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	12.2(8) T1	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	Not Supported	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	All IOS Versions	Not Supported
NM- HDV- 1E1-30E	12.1(5) XM1	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	12.2(8) T1	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	Not Supported	12.0 (7) XK, 12.1 (2)T, 12.2, 12.2T	All IOS Versions	Not Supported
NM- HDV-	12.1(5)	12.0 (7) XK, 12.1	12.2(8)	12.0 (7) XK, 12.1	Not	12.0 (7) XK, 12.1	All IOS	Not

<b>2E1-60</b>	XM1	(2)T, 12.2, 12.2T	T1	(2)T, 12.2, 12.2T	Supported	(2)T, 12.2, 12.2T	Versions	Supported
<b>NM-HDV-1T1-12</b>		12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	Not Supported	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	
<b>NM-HDV-1T1-24</b>	12.1(3) T	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	Not Supported	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	Not Supported
<b>NM-HDV-1T1-24E</b>	12.1(3) T	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	Not Supported	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	Not Supported
<b>NM-HDV-2T1-48</b>	12.1(3) T	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	Not Supported	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	Not Supported
<b>NM-HDV</b>	12.1(3) T	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	Not Supported	12.0 (5) XK, 12.0 (7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	Not Supported

<b>PVDM-12</b>	12.1(3)T	12.0(5)XK, 12.0(7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	12.0(5)XK, 12.0(7)T, 12.1, 12.1T, 12.2, 12.2T	Not Supported	12.0(5)XK, 12.0(7)T, 12.1, 12.1T, 12.2, 12.2T	All IOS Versions	Not Supported
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<sup>1</sup> Requires an IOS "Plus" feature set.

**Note:** The Cisco IOS® versions provided are typically the minimum version required to support the platform, module or feature in question. Use the [Software Advisor Tool](#) ([registered](#) customers only) for a complete list of Cisco IOS software versions in which a particular feature, module, interface card, or chassis is supported.

## Related Information

- [Voice Hardware Compatibility Matrix for Cisco 1750, 2600, 3600 and VG200 Routers and Catalyst 4000, 5000 and 6000 Switches](#)
- [Network Module Installation Guide](#)
- [Voice, Telephony and Messaging Technologies](#)
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