

# Cisco VGD 1 T3 Voice Gateway Ordering Guide

## Product Overview

The Cisco® VGD 1 T3 Voice Gateways offer outstanding capacity and the flexibility to deploy advanced voice, fax, and remote-access services. With more than 25 million ports deployed worldwide, Cisco voice gateways provide the scale, reliability, and suite of services required to meet market demands. The Cisco VGD 1 T3 offers voice and fax services in just two rack units (2RUs). The rich set of Cisco IOS® Software features available in the Cisco VGD 1 T3 makes the platform versatile and deployable in a wide range of network architectures.

The Cisco VGD 1 T3 chassis has seven slots that can take a channelized T3 (CT3) trunk card (two CT3 cards for time-division multiplexing (TDM) switching) or high-density packet voice and fax digital signal processor (DSP) feature cards.

This document describes how to order the Cisco VGD 1 T3 Voice Gateway and the relevant software licenses required for the gateway features.

## Before You Begin

Before you begin, have the answers to the following information ready:

- Will the customer use AC or DC redundant power supply?
- What applications need to be supported: Packet voice and fax?
  - Choose bundles or starter kit configurations that include high-density packet voice and fax feature cards and DSP modules for voice and fax applications
- How many simultaneous sessions need to be supported?
  - The maximum number of sessions that can be supported on one chassis varies, depending on the application. The Cisco VGD 1 T3 is designed to support up to 672 sessions. Using the high-density packet voice and fax feature card, the Cisco VGD-1 T3 supports up to 672 CT3 voice or fax calls.
- Is the Adaptive Multirate Narrow Band (AMR-NB) codec required?
  - AMR-NB codec support is available with the high-density packet voice and fax feature card. To activate the AMR-NB codec, order the Cisco VGD 1 T3 AMR codec license (part number FRVGD-AMR-LIC); pricing is per platform.
- What Cisco IOS Software features are required?
  - Basic Cisco IOS Software features are present in the IP Plus feature set.
  - Applications requiring Triple Data Encryption Standard (3DES) encryption, such as Secure Shell (SSH) Protocol Version 2, need the IP Plus 3DES feature set.
  - X.25, AppleTalk, and other non-IP protocols are supported on the Enterprise Plus feature set.
  - Enterprise applications requiring 3DES encryption need the Enterprise Plus 3DES feature set.

## Feature Licenses

Basic feature licenses for voice features on the Cisco VGD 1 T3 are included in the price of the DSP cards. No additional voice feature licenses need to be purchased. A feature license is required to use the optional features, including AMR-NB codec, Cisco Unified Border Element, and VoiceXML.

### Optional Feature Licenses

- Feature license for the AMR-NB codec on the Cisco VGD 1 T3 (part number FRVGD-AMR-LIC): This feature enables connectivity between GSM, US-TDMA, and PDC networks. AMR is the Third-Generation Partnership Project (3GPP) mandatory standard codec for narrow-band speech and multimedia messaging services over GSM networks.
- Feature license for Cisco Unified Border Element support on the Cisco VGD 1 T3 (part number FR-INTVSRV-5X): This feature provides Cisco Unified Border Element support for the VGD 1 T3 system.
- Feature license for VoiceXML on the Cisco VGD 1 T3 (part number FL-VXML-12): This feature provides 12 VoiceXML licenses: up to 240 per system.

Table 1 provides ordering information for the optional feature licenses.

**Table 1.** Optional Feature Licenses

Feature License Part Number	Description
FRVGD-AMR-LIC	VGD-1T3 AMR Narrowband Codec License Per Platform
FRVGD-AMR-LIC=	
FL-INTVSRV-5X	VGD-1T3 Integrated Voice Video License: Gatekeeper IPIP GW
FL-INTVSRV-5X=	
FL-VXML-12	VGD-1T3 VoiceXML Feature License Up To 12 Sessions
FL-VXML-12=	

## Performance and Capacity

The performance and capacity of the Cisco VGD 1 T3 varies for different applications. For typical voice-only applications (G.711 at 20 milliseconds [ms]), the gateway is designed to service 672 calls at up to 20 calls per second (cps). Consult your Cisco representative for performance characteristics for the specific applications that you will operate on the gateway.

The Cisco VGD 1 T3 occupies 2RUs, or 3.5 inches of rack space.

## Voice Codecs

The Cisco VGD 1 T3 offers multiple codecs to meet interoperability, compression, and latency requirements for a variety of voice applications. The Cisco VGD 1 T3 supports the voice codec's listed in Table 2.

**Table 2.** Codec Support and Channel capacity on Cisco VGD 1 T3 with High-Density Packet Voice/Fax Feature Card

DSP Feature Card	Low Complexity Codecs	Medium Complexity Codecs	High Complexity Codecs
Cisco VGD 1 T3 High-Density Packet Voice/Fax Feature Card (VGD-FC) with 6 DSP Module (AS5X-PVDM2-64) slots	<ul style="list-style-type: none"> <li>• G.711 <math>\mu</math>-law</li> <li>• G.711 a-law</li> <li>• Fax pass-through</li> <li>• Modem pass-through</li> <li>• Clear-channel codec</li> </ul>	<ul style="list-style-type: none"> <li>• G.729 a</li> <li>• G.729 abs</li> <li>• G.726 16K, 24K, and 32K</li> <li>• T.38 Fax Relay</li> <li>• Cisco Fax Relay</li> </ul>	<ul style="list-style-type: none"> <li>• AMR-NB 4.75K, 5.15K, 5.9K, 6.7K, 7.4K, 7.95K, 10.2K, 12.2K, and SID</li> <li>• G.723.1 5.3K, 6and .3K</li> <li>• G.723.1A 5.3K, and 6.3K</li> <li>• G.728</li> <li>• Modem relay</li> </ul>
Maximum channel capacity per feature card (VGD-FC)	384	192	144

### DSP Farm

The Cisco VGD 1 T3 can also be configured without any CT3 trunk cards to provide DSP farm applications.

### Ordering a System

Cisco has created an easy-to-order bundle for the most commonly used voice configuration: VGD-1T3-V. This bundle saves you time and effort in configuring the Cisco VGD 1 T3 Voice Gateway and offers a significant pricing advantage.

You can also choose to have flexibility in configuring the system and build a system using the Cisco VGD 1 T3 starter kit: VGD-1T3.

### Ordering Bundles

The easy-to-order bundle, part number VGD-1T3-V, contains the following products:

- Cisco IOS Software IP Plus feature set
- CT3 trunk feature card
- 6 VGD-FC feature cards; this is a feature card with 6 PVDM DSP module slots
- 36 AS5X-PVDM2-64 high-density packet voice and fax DSP modules
- Dual AC power supply
- 2 AC power cords (choose the appropriate country for use).
- 512-MB DDR RAM main memory
- 128-MB compact flash memory

You need to choose:

- Cisco IOS Software containing the features required
- Appropriate AC power cable for country of use
- (Optional) Dual DC power supply
- (Optional) Compact flash memory when available
- (Optional) AMR-NB codec license
- (Optional) Cisco Unified Border Element IP-IP gateway license
- (Optional) VoiceXML license

Table 3 shows a sample configuration using the bundle.

**Table 3.** Sample System Configuration Ordering Information Using a Bundle

Quantity	Part Number	Description
1	VGD-1T3-V	Voice Gateway with 1x CT3, 36x64 PVDM2 Packet Voice/Fax Channels, Redundant AC Power, IP + IOS Enterprise supporting CUCM and MGCP
1	SVGDAK9-12422T	Cisco VGD Series IOS ENTERPRISE PLUS IPSEC 3DES

### Building a System Using the Cisco VGD 1 T3 Starter Kit

Choose the Cisco VGD 1 T3 starter kit, which includes the Cisco VGD 1 T3 chassis with 1 GB of main memory and 128 MB of compact flash memory.

You need to choose:

- Appropriate redundant power option (AC or DC) and appropriate cables
- Appropriate Cisco IOS Software (based on features required)
- CT3 trunk cards (up to two per chassis)
- DSP feature cards (up to six per chassis for applications with CT3 trucking)
  - High-density packet voice and fax feature card (VGD-FC) and DSP module (AS5X-PVDM2-64): VGD-FC is a feature card with six PVDM DSP module slots; VGD-PVDM2-64 is a 64-channel high-density packet voice and fax DSP module
- (Optional) Integrated signaling link terminal (SLT) license
- (Optional) AMR-NB codec license
- (Optional) Cisco Unified Border Element IP-IP gateway license
- (Optional) VoiceXML license

Table 4 shows a sample configuration using the starter kit.

**Table 4.** Sample System Configuration Ordering Information Using the Starter Kit

Quantity	Part Number	Description
1	VGD-1T3	Voice Gateway Chassis Starter Kit, MB, Default Memory
1	PWR-VGD-AC-RPS	AC Redundant Power Supply
1	VGD-DFC-CT3	CT3 DFC card
3	VGD-FC	Feature Card with Six PVDM DSP Module Slots
18	AS5X-PVDM2-64	64-Channel Packet Voice/Fax DSP Module
1	SVGDAK9-12422T	Cisco VGD Series IOS ENTERPRISE PLUS IPSEC 3DES

### Building a DSP Farm Application System Configuration

Choose the Cisco VGD 1 T3 starter kit, which includes the Cisco VGD 1 T3 chassis with 1 GB of main memory and 128 MB of compact flash memory.

You need to choose:

- Appropriate redundant power option (AC or DC) and appropriate cables
- Appropriate Cisco IOS Software (based on features required)
- DSP feature cards (up to seven per chassis for this application)
  - High-density packet voice and fax feature card (VGD-FC) and DSP module (AS5X-PVDM2-64): VGD-FC is a feature card with six PVDM DSP module slots; AS5X-PVDM2-64 is a 64-channel high-density packet voice and fax DSP module

Table 5 shows a sample DSP farm application configuration.

**Table 5.** Sample DSP Farm Application System Configuration Ordering Information

Quantity	Part Number	Description
1	VGD-1T3	Voice Gateway Chassis Starter Kit, MB, Default Memory
1	PWR-VGD-AC-RPS	AC Redundant Power Supply
7	VGD-DSP-FARM	Feature card with 6 PVDM2 DSPs
1	SVGDAK9-12422T	Cisco VGD Series IOS ENTERPRISE PLUS IPSEC 3DES

**Note:** The total number of cards in any configuration should not exceed seven per chassis.

### Ordering Spares

The Cisco VGD 1 T3 chassis comes with the memory sizes shown in Table 6; you can order spare memory as specified in the table. You can also order spare chassis and feature cards as required and as listed in Table 7. Table 8 summarizes ordering information for all spares.

**Table 6.** Cisco VGD 1 T3 Memory Spares Ordering Information

Memory Type	Spare Memory Size	Part Number	Default Size
System flash memory	128-MB compact flash memory	MEM-128CF-AS5XM=	128 MB
Main DDR RAM	1 GB	MEM-1024M-AS5XM=	1 GB

**Table 7.** Cisco VGD 1 T3 Chassis Spares Ordering Information

Spare	Description	Part Number
Chassis	Cisco VGD 1 T3 spare chassis; default memory	VGD-1T3
Trunk cards	Spare CT3 trunk cards for Cisco VGD 1 T3	VGD-DFC-CT3=
Cisco VGD 1 T3 High-Density Packet Voice/Fax Feature Card and DSP Module	<ul style="list-style-type: none"> <li>Feature Card with Six VGD PVDM DSP Module Slots</li> <li>64-Channel High-Density Packet Voice/Fax DSP Module</li> </ul>	<ul style="list-style-type: none"> <li>VGD-FC=</li> <li>AS5X-PVDM2-64=</li> </ul>

**Table 8.** Spares Ordering Information

Part Number	Description
VGD-1T3	Voice Gateway Chassis Starter Kit, Motherboard, Default Memory supporting CUCM and MGCP
PWR-VGD-AC-RPS=	AC Redundant Power Supply, SPARE
PWR-VGD-DC-RPS=	DC Redundant Power Supply, SPARE
VGD-DFC-CT3=	CT3 DFC card, SPARE
VGD-FC=	Feature Card with Six PVDM DSP Module Slots
AS5X-PVDM2-64=	64-Channel Packet Voice/Fax DSP Module
MEM-1024M-AS5XM=	AS5350XM and AS5400XM 1GB Main SDRAM
MEM-128CF-AS5XM=	AS5350XM and AS5400XM 128M Compact Flash
CAB-AC-RPS=	Redundant PS AC Power Cord, US 110V
CAB-AC=	AC Power Cord, US



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