



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION

1

Introduction

2

What is DASH?

What is Intel® vPro™ Technology?

3

What is Intel® AMT?

5

Solutions

Software Solutions

6

HP Hardware Management Tools

Managing HP Workstations

7

More information



REMOTE MANAGEMENT OPTIONS



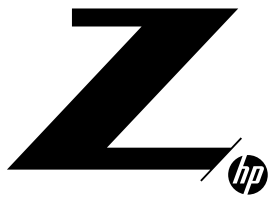
Remote management

INTRODUCTION

HP Workstations provide new options and levels of remote management capabilities through the support of Intel® vPro™¹ technology and DASH. The capabilities include full remote power control, Out-Of-Band (OOB) management, USB media redirection, text console redirection, Keyboard Video Mouse (KVM), hardware and software inventory, and sensor information.

Platform	Network interface	Remote management support
HP Z8 G4 Workstations	LOM*	AMT 11.2x and DASH 1.1
HP Z6 G4 Workstations	LOM*	AMT 11.2x and DASH 1.1
HP Z4 G4 Workstations	LOM*	AMT 11.1x and DASH 1.1
HP Z2 G4 Workstations	LOM*	AMT 12.0
HP Z2 Mini G4 Workstations	LOM*	AMT 12.0
HP Z2 Mini G3 Workstations	LOM*	AMT 11.0

* LOM indicates LAN on Motherboard.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION

1

Introduction

2

What is DASH?

What is Intel® vPro™ Technology?

3

What is Intel® AMT?

5

Solutions

Software Solutions

6

HP Hardware Management Tools

Managing HP Workstations

7

More information

DASH

Desktop and mobile
Architecture for
System Hardware

WHAT IS DASH?

DASH (Desktop and mobile Architecture for System Hardware) is an initiative to define standards and processes for over-the-wire management of desktops, workstations, and laptops. It is defined by the Distributed Management Task Force (DMTF), an industry organization leading the development of management standards.

The DASH specification currently defines 3 versions: 1.0, 1.1, and 1.2. The latter provides additional features like USB media redirection or text console redirection, for instance. By using

the auxiliary power present when the system is plugged into an AC outlet, the Management Controller is independent from the system's state and can monitor LAN traffic for DASH requests, and perform OOB tasks like power control, inventory, reporting system state, etc. Once the system is powered on, additional services become available like remoting the BIOS post screen, additional event alerts, alternate boot paths, etc. The DASH management standards are what drive the features and functionality of Intel® AMT².



HP Z8 G4 Workstation
(using built-in Intel
I219LM LAN port)

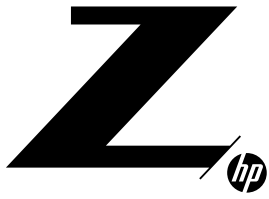


**IT Administration
console or
Remote User**

WHAT IS INTEL® VPRO™ TECHNOLOGY?

Intel® vPro™ technology is a collection of platform capabilities that integrate robust hardware-based security and enhanced maintenance and management capabilities for secure remote access to the platform for diagnostics and repair regardless of platform state.

- The HP Z8 G4, HP Z6 G4 and HP Z4 G4 Workstations, support Intel® vPro™ Technology. The Intel® chipsets coupled with an Intel® LOM and Intel® Xeon® E5-1600 or E5-2600 processor families featuring Intel® vPro™ Technology give these HP Workstations the same manageability features as a commercial PC with the Intel® vPro™ brand.
- The HP Z2 G4, HP Z2 Mini G4 and HP Z2 Mini G3 Workstations support Intel® vPro™ Technology when properly configured. The Intel® chipsets, coupled with an Intel® LOMs, and the Intel® Xeon® E3 processor family featuring Intel® vPro™ Technology give these HP Workstations the same manageability features as a commercial PC with the Intel® vPro™ brand. When any of these systems have Intel® Integrated Graphics (iGFX), the support for KVM remote sessions is enabled.
- Some of the capabilities of an Intel® vPro™ Technology supported platform include Intel® Active Management Technology (Intel® AMT), Intel® Virtualization Technology (Intel® VT-x), Intel® Virtualization Technology for Directed I/O (Intel® VT-d), Intel® Trusted Execution Technology (Intel® TXT), and other TPM 2.0 and 1.2-enabled features.
- Intel® vPro™ also enables DASH 1.1 and DASH 1.0 support. IT managers now have increased flexibility in optimizing their enterprise manageability strategy across HP Commercial Notebooks, Desktops, and Workstations.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION

1

Introduction

2

What is DASH?

What is Intel® vPro™ Technology?

3

What is Intel® AMT?

5

Solutions

Software Solutions

6

HP Hardware Management Tools

Managing HP Workstations

7

More information

Intel® AMT

Intel® Active Management Technology is an Intel® manageability solution unique to Intel® chipsets.

WHAT IS INTEL® AMT?

Intel® AMT (Intel® Active Management Technology) is an Intel® manageability solution unique to Intel® chipsets. Intel® AMT is supported within the HP Z8 G4, Z6 G4, Z4 G4, Z2 G2, Z2 Mini G4 and Z2 Mini G3 Workstations' internal circuitry and no additional add-in card is required.

AMT is part of Intel® vPro™ Technology and Intel® Standard Manageability and provides compatibility with the DASH standards (AMT 6.0 and above).

Similar to DASH, AMT's dedicated Management Engine can stay active on auxiliary power independent of the system state, as long as the system is plugged into an AC power source, and can monitor network traffic for special management commands via an independent path to the LAN port. When booted to an operating system, Intel®'s AMT drivers provide additional runtime management functionality. The user can also monitor the status of Intel® AMT through the Intel® Management and Security Status application, when booted to a Microsoft Windows environment with the appropriate Management Engine software installed.

With Intel® AMT, customers can utilize many of the same features for DASH 1.1 to remotely manage their workstations in order to reduce IT costs and minimize the down time of the systems being managed. Both DASH and AMT can also be used to cost effectively control systems in embedded applications.



The following table shows some of the **differences between the various standard manageability solutions offered on HP Workstations**. This table does not cover all of the differences but is intended to offer a glimpse of the capabilities of each.

Feature	Broadcom NIC/ DASH 1.1	AMT 7.1	AMT 8.1	AMT 9.1	AMT 11.0
Remote power on/off and reset	•	•	•	•	•
System alerts	•	•	•	•	•
Hardware and software inventory	•	•	•	•	•
Text console redirection	•	•	•	•	•



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION

1

Introduction

2

What is DASH?

What is Intel® vPro™ Technology?

3

What is Intel® AMT?

5

Solutions

Software Solutions

6

HP Hardware Management Tools

Managing HP Workstations

7

More information

Feature	Broadcom NIC/ DASH 1.1	AMT 7.1	AMT 8.1	AMT 9.1	AMT 11.0
IDE-Redirection (IDER)		•	•	•	
USB redirection					•
Identity Protection Technology (IPT)		•	•	•	•
Fast Call For Help (CIRA)		•	•	•	•
Remote Firmware update	•	•	•	•	•
Remotely change BIOS settings	•	•	•	•	•
Remote alerts outside of firewall		•	•	•	•
Out-of-band web server	•	•	•	•	•
OOB IPv6 support	•	•	•	•	•
Network defense filters		•	•	•	•
Host based setup		•	•	•	•
ME Firmware roll back		•	•	•	•
Protected Audio Video Path (PAVP)				•	•
Graceful Shutdown				•	•
Device Protection Technology					•
Software Guard Extensions (SGX)					•

The Broadcom NetXtreme Gigabit Ethernet LAN card supports some of the optional DASH 1.1 profiles.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION

1

Introduction

2

What is DASH?

What is Intel® vPro™ Technology?

3

What is Intel® AMT?

5

Solutions

Software Solutions

6

HP Hardware Management Tools

Managing HP Workstations

7

More information



SOLUTIONS

HP both develops and enables a large set of tools and applications to take advantage of DASH and Intel® vPro Technology on both HP Workstations and HP Business PCs.

The solutions available cover a large spectrum of customer profiles, from the single professional user to large enterprises, and a large set of needs, from global turn-key solutions to programmable interfaces for custom applications.

SOFTWARE SOLUTIONS

LANDESK MANAGEMENT SUITE

LANDesk Management Suite is **HP's recommended manageability solution for all commercial products**. LANDesk Management Suite combines remote management of inventory, systems, power and server in one console.

HP CLIENT CATALOG FOR MICROSOFT SYSTEM CENTER CONFIGURATION MANAGER

The HP Client Catalog for Microsoft System Center products automates the acquisition and deployment of HP software updates (Softpaqs) to HP systems in a Microsoft System Center products environment. The catalog file contains detailed platform information on HP commercial desktops, notebooks, and workstations. It can be used in conjunction with the custom inventory and update features of Microsoft System Center products to provide automated driver and patch updates to managed HP Clients.

HP MANAGEABILITY INTEGRATION KIT

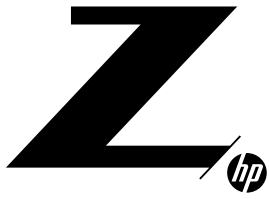
HP Manageability Integration Kit (HP MIK) is a plug-in for Microsoft's System Center Configuration Manager that improves the customer experience in deploying Microsoft Windows-based Client OS images to HP-managed clients. This is achieved through the following custom features:

- Importing WinPE and HP platform driver packs
- Integration of the BIOS Configuration utility, which allows the customer to configure BIOS settings during deployment
- Basic OS task sequences highlighting HP's custom steps

The HP MIK is installed on the same server as System Center Configuration Manager, and can be accessed through the System Center console on the server.

HP DRIVER PACK

HP Driver Packs contain the necessary Microsoft Windows drivers required to support the HP hardware platform(s) as listed in the release notes for each of the driver packs. The package contains drivers supporting both the integrated and add-in devices in an .INF based installation format. This INF installation method can be used standalone or with bare-metal operating system deployment tools that require .INF based drivers.



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION

1

Introduction

2

What is DASH?

What is Intel® vPro™ Technology?

3

What is Intel® AMT?

5

Solutions

Software Solutions

6

HP Hardware Management Tools

Managing HP Workstations

7

More information



HP HARDWARE MANAGEMENT TOOLS

HP SYSTEM SOFTWARE MANAGER

The HP System Software Manager (SSM) is a utility that automatically detects and updates BIOS, device drivers, and management agent versions on your networked PCs.

HP IMAGE ASSISTANT (HPIA)

The HP Image Assistant is a free tool that aids IT Admins improve the quality and security of their PC Windows image by diagnosing the image, identifying problem, recommending solutions, and analyzing their PC's readiness for migration between Windows 7 and Windows 10.

HP BIOS CONFIGURATION UTILITY (BCU)

The HP BIOS Configuration Utility is a free utility which provides the ability to manage BIOS settings on HP supported desktop, workstation and notebook computers.

Features

- Read available BIOS settings and their values from a supported computer
- Set configurable BIOS settings on a supported computer
- Set or reset Setup Password on a supported computer
- Replicate BIOS settings across multiple client computers

HP CLIENT MANAGER INTERFACE

The HP Client Management Script Library (HPCMSL) is a free set of PowerShell scripts that aid IT Admins who want to automate PC Lifecycle Management tasks.

Features and benefits:

- Download both SW and driver updates
- Download and maintain drivers in repository
- Query and set BIOS settings
- Set BIOS boot logo

MANAGING HP WORKSTATIONS

Using the tools and technologies previously mentioned, you can now more effectively manage your entire deployment of HP Workstations. Some of the client management features available include, but are not limited to, the following:

- Full Web user interface based system management via software console
- Limited Web user interface based system management via management engine Web server
- Remote BIOS or firmware update
- Remote power cycling
- Remote operating system update/repair
- Email alerting for system/component failures
- System configuration inventory reporting
- Workstation KVM control using RGS



TECHNICAL WHITE PAPER

CONTENTS & NAVIGATION

1

Introduction

2

What is DASH?

What is Intel® vPro™ Technology?

3

What is Intel® AMT?

5

Solutions

Software Solutions

6

HP Hardware Management Tools

Managing HP Workstations

7

More information

MORE INFORMATION

hp.com and hp.com/go/whitepapers

<https://ftp.hp.com/pub/caps-softpaq/cmit/HPMIK.html>

HP Manageability Integration Kit central resource (information, downloads, papers)

dmtf.org/standards/mgmt/dash/

DMTF web site (DASH spec, papers, DASH features and benefits)

intel.com/AMT

Intel® AMT at the Intel® website

¹ Some functionality of this technology, such as Intel® Active management technology and Intel® Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel® vPro technology is dependant on 3rd party software providers. Compatibility of this generation of Intel® vPro technology-based hardware with future "virtual appliances" as is yet to be determined.

² Intel® Active Management Technology requires an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes.

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