Ubuntu Server Hardware Certification Test Case Guide (16.04 LTS)

Contents

CANONICAL

Introduction

This guide describes the jobs performed in Ubuntu server certification testing. A job can be anything executed by Checkbox, typically these are either information gathering jobs or test cases.

Test cases follow the format Category/TestName such as *ethernet/detect*. Some job names may simply be a TestName without the category designator. These are typically jobs that gather and/or attach hardware info for the submission file.

Jobs are grouped into three categories:

mandatory_include

Items that Checkbox *will* run every time. These jobs can not be skipped.

include

Items that Checkbox *may* run. These jobs can be skipped depending on the presence or absence of certain components, or software.

bootstrap_include

Items that Checkbox will run before the final test list is created. These jobs accomplish tasks such as gathering initial system information that is used to determine which test cases are applicable to the SUT.

This guide is based on the *server-full-16.04.pxu* list used for full Server Certification. Other lists in the *canonical-certification-server* UI are either subsets of this list, or not applicable to 16.04 certification, such as the 14.04 lists.

Tests

bootstrap include:

device

No description available

fwts

No description available

include:

benchmarks/disk/hdparm-cache-read_{name}

This test runs hdparm timing of cache reads as a benchmark for {name}

benchmarks/disk/hdparm-read_{name}

This test runs hdparm timing of device reads as a benchmark for {name}

cpu/clocktest

Tests the CPU for clock jitter.

cpu/maxfreq_test

Test that the CPU can run at its max frequency using Firmware Test Suite (fwts cpufreq).

cpu/maxfreq_test-log-attach

Attaches the log generated by cpu/maxfreq_test to the results submission.

cpu/offlining_test

Test offlining of each CPU core in a multicore system.

cpu/scaling_test

Test the CPU scaling capabilities using Firmware Test Suite (fwts cpufreq).

cpu/scaling_test-log-attach

Attaches the log generated by cpu/scaling_test to the results submission.

cpu/topology

This test checks cpu topology for accuracy between proc and sysfs.

disk/detect

Displays information about each disk detected on the system under test.

disk/read_performance_{name}

Disk performance test for {product}

disk/smart_{name}

This tests the SMART capabilities for {product} (Note that this test may not work against hardware RAID)

disk/stats_{name}

This test checks {name} disk stats, generates some activity and rechecks stats to verify they've changed. It also verifies that disks appear in the various files they're supposed to.

disk/storage_device_{name}

Disk I/O stress test for {product}

ethernet/detect

Test to detect and return information about available network controllers on the system under test.

ethernet/ethertool_check_device{__index__}_{interface}

This test executes ethtool requests against ethernet device {__index__} ({interface}).

ethernet/ethtool_info

No description available

ethernet/info_automated

Gathers some info on the current state of your network devices. If no devices are found, the test will exit with an error.

ethernet/multi_iperf3_nic_device{__index__}_{interface}

This test uses iperf3 to ensure network devices pass data at an acceptable minimum percentage of advertized speed.

info/hdparm_{name}.txt

Attaches the bootchart png file for bootchart runs

info/kvm_output

Attaches the debug log from the virtualization/kvm_check_vm test to the results submission.

memory/info

This test checks the amount of memory which is reporting in meminfo against the size of the memory modules detected by DMI.

memory/memory_stress_ng

Test to perform some basic stress and exercise of system memory via the stress_ng tool. This test also includes an over-commit function to force swapping to disk, thus SUTs should have suitably large swap files for the amount of RAM they have installed.

miscellanea/bmc_info

This will gather some info about the BMC itself for diagnostic purposes. This will not works on non-IPMI systems like AMT and blade/sled type systems.

miscellanea/ipmi_test

This will run some basic commands in-band against a BMC, verifying that IPMI works. Use of MAAS to deploy the system implicitly tests out-of-band BMC control.

optical/detect

Detects optical drives (CD/DVD) attached to the system.

optical/read-automated_{name}

This is an automated version of optical/read. It assumes you have already inserted a data CD into your optical drive prior to running Checkbox.

power-management/rtc

Verify that the Real-time clock (RTC) device functions properly, if present.

stress/cpu_stress_ng_test

Impose a high system load using the 'stress_ng' tool to exercise the CPU for several hours. The test is considered passed if the system does not freeze and if the stress_ng tool does not report errors.

usb/detect

Detects and shows USB devices attached to this system.

usb/storage-preinserted

Tests USB 2.0 or 1.1 ports on a system by doing write/read/compare tests on randomly created data. It requires that a USB stick is plugged into an available USB port before running the certification suite.

usb3/storage-preinserted

Tests USB 3.0 ports on a system by doing write/read/compare tests on randomly created data. It requires that a USB stick is plugged into an available USB port before running the certification suite. Additionally, it will only work with USB sticks and ports rated for USB 3.0 speeds or faster.

virtualization/kvm_check_vm

Verifies that a KVM guest can be created and booted using an Ubuntu Server cloud image.

mandatory include:

cpuinfo_attachment

Attaches a report of CPU information

dkms_info_attachment

Attaches json dumps of installed dkms package information.

dmesg_attachment

Attaches a copy of /var/log/dmesg to the test results

dmi_attachment

Attaches info on DMI

dmidecode_attachment

Attaches dmidecode output

efi_attachment

Attaches the firmware version

info/disk_partitions

Attaches information about disk partitions

info/network_devices

Provides information about network devices

kernel_cmdline_attachment

Attaches the kernel command line used to boot

lsblk_attachment

Attaches disk block devices mount points

lshw_attachment

Attaches lshw output

lsmod_attachment

Attaches a list of the currently running kernel modules.

lspci_attachment

Attaches very verbose lspci output.

lsusb_attachment

Attaches a list of detected USB devices.

meminfo_attachment

Attaches info on system memory as seen in /proc/meminfo.

miscellanea/boot_mode

Test to verify that the system booted in EFI mode with Secure Boot active.

miscellanea/cpus_are_not_samples

Sanity check of CPU information; fails if CPU is an engineering sample

miscellanea/dmitest_server

Sanity check of DMI system identification data (for servers)

miscellanea/get_maas_version

If system was installed via MAAS from a cert server, the MAAS version used should be contained in /etc/installed-by-maas

miscellanea/get_make_and_model

Retrieve the computer's make and model for easier access than digging through the dmidecode output.

miscellanea/submission-resources

A meta-job that verifies the data necessary for a complete result submission are present. Failure indicates that the results are incomplete and may be rejected.

modinfo_attachment

Attaches modinfo information for all currently loaded modules

modprobe_attachment

Attaches the contents of the various modprobe conf files.

modules_attachment

Attaches the contents of the /etc/modules file.

sysctl_attachment

Attaches the contents of various sysctl config files.

sysfs_attachment

Attaches a report of sysfs attributes.

udev_attachment

Attaches a dump of the udev database showing system hardware information.