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وَأَمَّا الْفُلُ فَأُرْسِلَتْ بِرَحْمَةٍ مِنَّا لِيُبَيِّنَ مَا بَيْنَ أَيْمَانِهِ هَذِهِ وَأَيْمَانِ ذُو الْأُنْثَىٰ هَذِهِ ۚ فَيَسْأَلُهُمْ فِيهَا نَكَبٌ مِّمَّنْ لَّهُ فَيُكَفِّرُنَا هُنَا أَوْ يَسْتَفِئُنَا هُنَا ۚ قَالَ لَا تُجِيبُنِي فِي السَّفَرِ ۖ جِئْتُكِ وَأَخَذْتُ الْمَصَارِمَ ۚ إِنَّكِ الْكَافِرَةُ ۚ

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Desktop and Mobile Computing Hardware

Standard

Version: 2	NCIT ITSD 003	Effective Date: 17 th February 2021
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National Centre for Information Technology

<i>Desktop and Mobile Computing Hardware</i>	IT STANDARD	Version: 2
	NCIT ITSD 001	Effective Date: 17 th February 2021

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1 Purpose

This document establishes the standard for desktop and mobile computing hardware to be procured for the Government of Maldives.

Its main purpose is to promote efficient and effective use of information technology (IT) in furtherance of the government's policies and plans and to minimize the total cost of ownership through the provision of appropriate and fit for purpose computing hardware.

A government agency may source alternative desktop and mobile computing hardware at a better specification than those set by this standard provided that there is a valid justification for such procurement. All such procurement shall be subject to the exemption procedures defined in this document.

2 Scope

This standard applies to all the public sector agencies and offices of the Government of Maldives.

3 Definitions

Desktop and Mobile Computing	For the purpose of this standard, 'Desktop and Mobile Computing' is referred to the use of desktop and mobile computing commodities in public sector agencies to support the business operations
Desktop and Mobile Computing Hardware	Hardware commonly required for most public sector employees to perform daily business transactions; such as desktop computers, mobile computers, peripheral devices (e.g., printers, scanners) and Desktop Servers (Small office Servers e.g. domain controllers, file and print servers).
Desktop Computers	Computing devices, generally designed to remain in a fixed location, that can connect by cable, telephone wire, wireless transmission or via any Internet connection to an agency's IT infrastructure and/or data systems.
Mobile Computers	Portable-computing devices that can connect by cable, telephone wire, wireless transmission, or via any Internet connection to an agency's IT infrastructure and/or data systems. (Includes Laptop / Tablets and other mobile computers)

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Public Sector

For the purposes of this standard, public sector includes all the organizations, agencies and offices of the Government of Maldives including judicial sector, parliament and independent institutions.

4 Standards

Any commodity that is not stated in this standard should be pre-approved from National Centre for Information Technology prior to its procurement.

4.1 Personal Computers

Personal Computer Standards cover requirements for:

1. General Purpose PCs – Personal Computer's procured for general office use
2. High Performance PCs – computers dedicated for image processing, video processing and Software development purposes

4.1.1 General Purpose Personal Computers

The Desktop PC Standard applies to all PCs used in the public sector organizations for general office/business purpose computing, such as word processing, working with spread sheets, internet browsing and basic desktop publishing, image processing and web meetings.

Uses/Users: Reception, Front Offices, Meeting Rooms, Service Counters, Corporate, Human Resources, Finance, Procurement departments etc.

Form Factor	Micro, Mini/Small, Tower (Note: Ultra Small size and All-in-One is not included)
Processor	9th Generation Intel® Core i5-9000 (Series processors)
Motherboard	SATA II Support RAM Upgradeable to 32GB Integrated Sound Capabilities
Motherboard Slots	1 Half Height \ Full Height PCIe 4x (For bigger form factor units) 1 Half Height PCIe 1x / 2 DIMM Slot
RAM	16GB RAM, DDR4
Hard Disk Drive 01	256 GB SSD
Hard Disk Drive 02 (Optional)	1TB SATA II, 7200rpm
Optical Drive (Optional)	Internal 32x DVD+/- RW
Video	Intel UHD Graphics with shared 2GB graphics memory, 1x HDMI/D-Port
Monitor	21" – 23" Flat Screen with HDMI / D-Port
Network	1000Mbps / Gigabit Ethernet
Input / Output Ports	USB 3.0 (2 front/2 rear) Audio Jack (Front Audio Combo Jack)
Keyboard	USB QWERTY Enhanced Keyboard (101 keys)
Mouse	USB Wired Optical Scroll Mouse + Mouse Pad

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Operating System	Windows 10 Pro
Drivers	OEM Drivers for the defined Operating System(s)
Webcam	AutoFocus 1080p Webcam with Microphone / Adjustable Mounting Clip or Stand.
Conferencing Headsets:	Wired Headset with mic (3.5mm Composite Jack)

4.1.2 High Performance Personal Computers

The High Performance PC Standard applies to all PCs procured for the dedicated purposes of image or video processing or for software development and testing.

Users: Graphics Designers, Software Developers, Technical Teams, Research and Development Teams, and Senior Management.

Form Factor	Tower
Processor	9th Generation Intel® Core i7-9000 series processor
Motherboard	SATA III Support RAM Upgradeable to 64GB
Motherboard Slots	1 full height PCIe 16x 1 full height PCIe16x (wired as 4x) 1 full height PCIe 1x 1 full height PCI 4 DIMM Slots
RAM	32 GB RAM DDR4
Hard Disk Drive 01	SSD 500GB
Hard Disk Drive 02	3.5" 1TB 7200 rpm Hard Drive
Optical Drive (optional)	DVD-RW Drive (Reads and Writes to DVD/CD) (Internal)
Video	2GB HD Graphics Card with HDMI, DVI, D-Port with Dual Monitor Support
Network	1000Mbps / Gigabit Ethernet
Input / Output Ports	6 – USB 3.2 (2 front/4 rear) Audio Jack (Front Audio Combo Jack)
Keyboard	USB QWERTY Enhanced Keyboard (101 keys)
Mouse	USB Wired Optical Scroll Mouse + Mouse Pad
Operating System	Windows 10 Pro
Drivers	OEM Drivers for the defined Operating System(s)
Monitor 1	23" - 24" Flat Screen, HDMI, D-Port
Monitor 2 (Optional)	23" - 24" Flat Screen, HDMI, D-Port
Webcam	AutoFocus 1080p Webcam with Microphone
Conferencing Headsets:	Wired Over-ear headphones with Noise Cancelling Mic (3.5mm Composite Jack)

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4.2 Notebook PC

The Notebook PC Standard applies to all mobile computers used in the public sector organizations, primarily used for web-based applications, Internet browsing and light-weight use of office applications such as presentations, word processing, working with spread sheets, desktop publishing and image processing.

Notebook Personal Computer Standards cover requirements for:

1. General Purpose Notebook PCs – Notebooks procured for general office use
2. High Performance Notebook PCs – Notebooks that will primarily be used for computers dedicated for high end computing

4.2.1 General Purpose Notebook PC

This Standard applies to all Notebook PCs used in the public sector organizations for general purpose computing, such as word processing, working with spread sheets, internet browsing and basic desktop publishing and image processing.

Uses/Users: Training, office administration, Front Offices, Meeting Rooms, Service Counters, Corporate, Human Resources, etc.

Processor	9th Generation Intel® Core i5-9000 series (mobile) processor
Motherboard	RAM Upgradeable to 32GB Integrated Sound Capabilities
RAM	16 GB RAM, DDR4
Hard Disk Drive	256 GB SSD
2nd Hard Disk Drive (Optional)	1TB SATA
Video Interface	Intel® HD Graphics
Network Interface	Gigabit Ethernet network Wireless LAN: 802.11 b/g/n Bluetooth v4.0
Input / Output Ports	2 – USB 3.0 Ports HDMI Port 1 Headphone & Microphone (or Combo port) SD Card Reader
Keyboard	QWERTY Keyboard
Pointing Device	Built-in pointing device
Operating System	Windows 10 Professional 64bit
Drivers	OEM Drivers for the defined Operating System(s)
Webcam	Built in Webcam / Autofocus 1080p Webcam with Microphone
Display	13" - 15" HD Wide Screen LED Anti-Glare Display
Battery	> 6 hours continuous use
Weight	< 2 kg
Warranty	1 Year / Parts and Labor (On and off site service)
Power / Environmental	AC Adapter / UK, ENERGY STAR

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Conferencing Headsets:	Wired Headphones with Noise Cancelling (3.5mm Composite Jack)
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4.2.2 High Performance Notebook PC

This standard applies to Notebooks that will primarily be used for computers dedicated for image processing, video processing and software development purposes such as high-end graphical presentations, multimedia editing, development of web based application etc.

Uses/Users: Graphics Designers, Software Developers, Technical Teams, Research and Development Teams

Processor	9th Generation Intel® Core i5-9000 series processor
Motherboard	SATA II Support RAM Upgradeable to 32GB Integrated Sound Capabilities
RAM	64GB Dual-Channel SODIMMs
Hard Disk Drive	500GB solid-state drive (SSD, M.2 2230, Usable <i>Range >480GB</i>)
Optical Drive	External \ Internal DVD-RW
Video Interface	GeForce RTX 2060 or GeForce GTX 1660 Ti
Network Interface	Gigabit Ethernet network Wireless LAN: 802.11ac or 802.11 b/g/n Bluetooth v4.0
Input / Output Ports	2 USB 3.0 (PowerShare) Ports HDMI Port 1 Headphone & Microphone (or Combo port)
Keyboard	QWERTY Keyboard
Pointing Device	Built-in pointing device
Operating System	Windows 10 Professional 64bit
Drivers	OEM Drivers for the defined Operating System(s)
Webcam	Built in Webcam / Autofocus 1080p Webcam with Microphone
Display	13 - 15.6" HD Wide Screen LED Anti-Glare Display
Battery	> 8 hours continuous use
Weight	NA
Warranty	1 Year / Parts and Labour (Onsite Service and offsite)
Power / Environmental	AC Adapter / UK, ENERGY STAR
Conferencing Headsets:	Wired Headphones with Noise Cancelling (3.5mm Composite Jack)

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5 Warranty

The Warranty on all Desktop and Mobile Computing Hardware shall be of a *minimum* of twelve (12) months parts and labor, from date of delivery.

6 Use in Procurement

The standards described in this document shall be used as the *standard* for the procurement of desktop and mobile computing hardware. Any hardware which meets or exceeds these specifications will be deemed technically compliant or responsive for the purposes of procurement.

In addition, optional extras are also provided, in this standard, for a number of desktop and mobile computing hardware commodities. These options are provided in order to accommodate different usage scenarios. Agencies should use the rationale provided for each of these optional items to identify optional items which are absolutely necessary for the main purpose of the hardware commodity and ensure that all requests for optional items include the reasons for such requests.

7 Exemptions

In specific cases where these minimum specifications are not adequate, appropriate or fit-for-purpose, public sector organizations shall request for an exemption or deviation from the standard from the National Centre for Information Technology (NCIT). Such requests shall be forwarded in writing and include the proposed minimum specification and business justification for the need for hardware of a better specification. All such procurement shall be conducted with the written consent of NCIT.

8 Document Information

8.1 Revision History

VERSION	EFFECTIVE DATE	DETAILS
1.0	22.02.2011	Initial Release
1.1	19.04.2011	PC operating system update
1.2	13.06.2011	PC processor update
1.3	01.02.2012	PC specification update
1.4	24.09.2013	PC specification update
1.5	08.07.2014	PC specification update Netbook PC specification update
2	17.02.2020	Revised PC and Notebook standards

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8.2 Related Documents

This standard is related to:

- Desktop and Mobile Computing Software Standard (NCIT ITSD 001)
- Desktop and Mobile Computing Software Standard (NCIT ITSD 002)

9 Issuing Authority

This document has been compiled by and issued with the authority of the *National Centre for Information Technology*.

10 Contact Information

Any suggestions, queries or requests for clarification regarding this standard may be forwarded to NCIT at projects@ncit.gov.mv.