

Notice

Subject: - Draft Technical Specifications of Computer Systems and Laptops for arranging annual rate contract for one year on behalf of various Govt. Departments/organizations.

1. Draft technical specifications for arranging Annual rate contract of Computer Systems and Laptops on behalf of various Govt. Departments/organizations for a period of one year is placed at Annexure-I and Annexure-II respectively. The prospective OEMs may submit their queries /suggestions within 3 days from the date of uploading of the draft specifications on the website of HARTRON and IT Department Haryana. The OEMs may submit their queries/suggestions either themselves or through only one authorized distributor at mdhartron@gmail.com.
2. The suggestions/queries to be received from the OEMs will be reviewed by the Technical committee under the Chairmanship of Addl. Managing Director Hartron. In case, technical committee desires to invite selected or all OEMs, (either themselves or only one authorized distributor) may be called to present before the committee with authority letter from respective OEMs.
3. HARTRON/IT Department reserve the right to accept or reject the queries/suggestions regarding the Technical specifications without assigning any reason(s).

(AMD HARTRON)

Intel Processor Based Computer Systems

Category-I (Intel) (Normal Office Function Computer System):

Type	Parameter	Required Minimum Specification
Processor	Generation	Intel® Core™ i3 Processor 11 th Generation or higher.
	CPU Architecture	X64
	Speed (Min Base Frequency)	2.2 GHz or Higher
	Turbo Frequency	4.10 GHz or higher
	Cores	Min. 4
	Threads	Min. 8
	Cache	12 MB or higher
Mother Board	Sound/ Audio System	Integrated
	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable up to 32 GB (Min. 2 DIMM) or higher
	Video Graphics	Integrated Graphics
	PCI Slot	Minimum 1 PCI Express x 16
Hard disk Drive (HDD/SSD)	256 GB SSD + 1 TB SATA (7200 RPM) or 512 GB SSD or higher capacity	
Display	Screen Size	19.5" or more TCO 08 certified
	Display Technology	Active Matrix TFT LCD (Backlit LED)
	Resolution	1600x900 or higher
Keyboard	Standard USB OEM make	
Mouse	Optical/Laser USB OEM make	
Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM or Higher
	Additional OS supported	Linux
Miscellaneous	Ports, Security & Misc.	Minimum 6 USB Ports (Out of which 3 USB 3.0 ports and minimum 2 USB ports should be at front), 10/100/1000 Ethernet Card, 1x VGA/DP, 1x Display Port/HDMI, Microphone & Stereo Head Phone/ Combo port and other standard ports, TPM 2.0 or higher.
	Power Supply	260 W or less Power supply ($\geq 85\%$ efficient), Active PFC or higher
	Volume	≤ 15.5 Liters
Warranty		Min 5 years OEM onsite comprehensive warranty.

Required Certification

S#	Category of Standard	Description	Name of Certification
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS 13252(Part1):2010/ IEC 60950 Part1:2005/ UL Certification/ Equivalent Indian Standard
		Certification for Electro Magnetic Interference/Radiation under control	FCC/Equivalent certification from NABL approved Lab
		Restriction of Hazardous Substances in manufacturing	India WEEE & India RoHS/ International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or higher/ Equivalent BEE Star rating
3.	Environmental Standards	Environmental Protection Standard	EPEAT/ Equivalent Indian Standard
4.	ISO standard	ISO 9001	ISO 9001

Additional Items

1. 1x64 GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16xGB DDR-IV (2933).
3. 1 TB SSD in lieu of 512 GB SSD.
4. 21.5-inch Monitor TCO 8 (1980x1080) in lieu of 19.5 Inch Monitor.
5. Dos/Linux in lieu of Windows 11 Professional 64 bit Operating Systems.
6. Windows STF (Shape the future Program) in lieu of Windows 11 Professional 64 bit Operating Systems.
7. Internal Wi-Fi Card.

Note: Please read 1x64GB as 1x16GB DDR-IV RAM (2933Mhz) in Additional items of specifications for all categories of Computer systems.

AMD Processor Based Computer Systems

Category-I AMD (Normal Office Function):

Type	Parameter	Required Minimum Specification
Processor	Generation	AMD Ryzen 3, 5000 series or higher
	CPU Architecture	x64
	Speed (Min Base Frequency)	4.0 GHz or higher
	Cores	Min. 4
	Threads	Min. 8
	Cache	10 MB or higher
Mother Board	Sound/ Audio System	Integrated
	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable up to 32 GB (Min. 2 DIMM) or higher
	Video Graphics	Integrated Graphics
	PCI Slot	Minimum 1 PCI Express x 16
Hard disk Drive (HDD/SSD)	256 GB SSD + 1 TB SATA (7200 RPM) or 512 GB SSD or higher capacity	
Display	Screen Size	19.5" or more TCO 08 certified
	Display Technology	Active Matrix TFT LCD (Backlit LED)
	Resolution	1600x900 or higher
Keyboard	Standard USB OEM make	
Mouse	Optical/Laser USB OEM make	
Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM or Higher
	Additional OS supported	Linux
Miscellaneous	Ports, Security & Misc	Minimum 6 USB Ports (Out of which 3 USB 3.0 ports and minimum 2 USB ports should be at front), 10/100/1000 Ethernet Card, 1x VGA/DP, 1x Display Port/HDMI, Microphone & Stereo Head Phone/ Combo port and other standard ports, TPM 2.0 or higher.
	Power Supply	260 W or less Power supply ($\geq 85\%$ efficient), Active PFC or higher
	Volume	≤ 15.5 L
Warranty		Min 5 years OEM onsite comprehensive warranty.

Required Certification

S#	Category of Standard	Description	Name of Certification
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS 13252(Part1):2010/ IEC 60950 Part1:2005/ UL Certification/ Equivalent Indian Standard
		Certification for Electro Magnetic Interference/Radiation under control	FCC/Equivalent certification from NABL approved Lab
		Restriction of Hazardous Substances in manufacturing	India WEEE & India RoHS/ International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or higher/ Equivalent BEE Star rating
3.	Environmental Standards	Environmental Protection Standard	EPEAT/ Equivalent Indian Standard
4.	ISO standard	ISO 9001	ISO 9001

Additional Items

- 1x64 GB DDR-IV RAM (2933 MHz).
- 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16xGB DDR-IV (2933).
- 1 TB SSD in lieu of 512 GB SSD.
- 21.5-inch Monitor TCO 8 (1980x1080) in lieu of 19.5 Inch Monitor.
- Dos/Linux in lieu of Windows 11 Professional 64 bit Operating Systems.
- Windows STF (Shape the future Program) in lieu of Windows 11 Professional 64 bit Operating Systems.
- Internal Wi-Fi Card.

Intel Processor Based Computer Systems

Category-II Intel (Middle/Higher Management Mid-Scale Development Computer System):

Type	Parameter	Required Minimum Specification
Processor	Generation	Intel® Core™ i5 Processor 11 th Generation or higher.
	CPU Architecture	x64
	Speed (Min Base Frequency)	2.5 GHz or higher
	Turbo Frequency	4.4 GHz or higher
	Cores	Min. 6
	Threads	Min. 12
	Cache	12 MB or higher
Mother Board	Sound/ Audio System	Integrated
	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable up to 64 GB (Min. 2 DIMM) or higher
	Video Graphics	Integrated Graphics
	PCI Slot	Minimum 1 PCI Express x 16
Hard disk Drive	512 GB SSD + 1 TB SATA (7200 RPM) or higher or 1 TB SSD or higher capacity	
Display	Screen Size	19.5" or more TCO 08 certified
	Display Technology	Active Matrix TFT LCD (Backlit LED)
	Resolution	1600x900 or higher
Keyboard	Standard USB OEM make	
Mouse	Optical/Laser USB OEM make	
Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM or Higher
	Additional OS supported	Linux
Miscellaneous	Ports, Security & Misc.	Minimum 6 USB Ports (Out of which 3 USB 3.0 ports and minimum 2 USB ports should be at front), 10/100/1000 Ethernet Card, 1x VGA/DP, 1x Display Port/HDMI, Microphone & Stereo Headphone/ Combo port and other standard ports, TPM 2.0 or higher.
	Power Supply	260 W or less Power supply ($\geq 85\%$ efficient), Active PFC or higher
	Volume	≤ 15.5 Liters
Warranty		Min 5 years OEM onsite comprehensive Warranty.

Required Certification

S#	Category of Standard	Description	Name of Certification
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS 13252(Part1):2010/ IEC 60950 Part1:2005/ UL Certification/ Equivalent Indian Standard
		Certification for Electro Magnetic Interference/Radiation under control	FCC/Equivalent certification from NABL approved Lab
		Restriction of Hazardous Substances in manufacturing	India WEEE & India RoHS/ International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or higher/ Equivalent BEE Star rating
3.	Environmental Standards	Environmental Protection Standard	EPEAT/ Equivalent Indian Standard
4.	ISO standard	ISO 9001	ISO 9001

Additional Items

- 1x64 GB DDR-IV RAM (2933 MHz).
- 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16xGB DDR-IV (2933).
- 1 TB SSD in lieu of 512 GB SSD.
- 21.5-inch Monitor TCO 8 (1980x1080) in lieu of 19.5 Inch Monitor.
- Dos/Linux in lieu of Windows 11 Professional 64 bit Operating Systems.
- Windows STF (Shape the future Program) in lieu of Windows 11 Professional 64 bit Operating Systems.
- Internal Wi-Fi Card.

AMD Processor Based Computer Systems

Category-II AMD (Middle/Higher Management Mid-Scale Development):

Type	Parameter	Required Minimum Specification
Processor	Generation	AMD Ryzen 5, 5000 Series or higher
	CPU Architecture	x64
	Speed (Min Base Frequency)	3.9 GHz or higher
	Cores	Min. 6
	Threads	Min. 12
	Cache	19 MB or higher
Mother Board	Sound/ Audio System	Integrated
	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable up to 64 GB (Min. 2 DIMM)
	Video Graphics	Integrated Graphics
	PCI Slot	Minimum 1 PCI Express x 16
Hard disk Drive	512 GB SSD + 1 TB SATA (7200 RPM) or 1 GB SSD or higher capacity.	
Display	Screen Size	19.5" or more TCO 08 certified
	Display Technology	Active Matrix TFT LCD (Backlit LED)
	Resolution	1600x900 or higher
Keyboard	Standard USB OEM make	
Mouse	Optical/Laser USB OEM make	
Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM or Higher
	Additional OS supported	Linux
Miscellaneous	Ports, Security & Misc.	Minimum 6 USB Ports (Out of which 3 USB 3.0 ports and minimum 2 USB ports should be at front), 10/100/1000 Ethernet Card, 1x VGA/DP, 1x Display Port/HDMI, Microphone & Stereo Headphone/ Combo port and other standard ports, TPM 2.0 or higher.
	Power Supply	260 W or less Power supply ($\geq 85\%$ efficient), Active PFC or higher
	Volume	≤ 15.5 L
Warranty		Min 5 years OEM onsite comprehensive Warranty.

Required Certification

S#	Category of Standard	Description	Name of Certification
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS 13252(Part1):2010/ IEC 60950 Part1:2005/ UL Certification/ Equivalent Indian Standard
		Certification for Electro Magnetic Interference/Radiation under control	FCC/Equivalent certification from NABL approved Lab
		Restriction of Hazardous Substances in manufacturing	India WEEE & India RoHS/ International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or higher/ Equivalent BEE Star rating
3.	Environmental Standards	Environmental Protection Standard	EPEAT/ Equivalent Indian Standard
4.	ISO standard	ISO 9001	ISO 9001

Additional Items

1. 1x64 GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16xGB DDR-IV (2933).
3. 1 TB SSD in lieu of 512 GB SSD.
4. 21.5-inch Monitor TCO 8 (1980x1080) in lieu of 19.5 Inch Monitor.
5. Dos/Linux in lieu of Windows 11 Professional 64 bit Operating Systems.
6. Windows STF (Shape the future Program) in lieu of Windows 11 Professional 64 bit Operating Systems.
7. Internal Wi-Fi Card.

Intel Processor Based Computer Systems

Category-III (Intel) (Top Management High End Programming/Development Computer System):

Type	Parameter	Required Minimum Specification
Processor	Generation	Intel® Core™ i7 Processor 11 th Generation or higher.
	CPU Architecture	x64
	Speed (Min Base Frequency)	1.6 GHz or higher
	Turbo Frequency	4.9 GHz or higher
	Cores	Min. 8
	Threads	Min. 16
	Cache	16 MB or higher
Mother Board	Sound/ Audio System	Integrated
	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable up to 64 GB (Min. 2 DIMM) or higher
	Video Graphics	Integrated Graphics
	PCI Slot	Minimum 1 PCI Express x 16
Hard disk Drive	512 GB SSD + 1 TB SATA (7200 RPM) or 1 TB SSD or higher capacity.	
Display	Screen Size	19.5" or more TCO 08 certified
	Display Technology	Active Matrix TFT LCD (Backlit LED)
	Resolution	1600x900 or higher
Keyboard	Standard USB OEM make	
Mouse	Optical/Laser USB OEM make	
Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM or Higher
	Additional OS supported	Linux
Miscellaneous	Ports, Security & Misc	Minimum 6 USB Ports (Out of which 3 USB 3.0 ports and minimum 2 USB ports should be at front), 10/100/1000 Ethernet Card, 1x VGA/DP, 1x Display Port/HDMI, Microphone & Stereo Headphone/ Combo port and other standard ports, TPM 2.0 or higher.
	Power Supply	260 W or less Power supply ($\geq 85\%$ efficient), Active PFC or higher
	Volume	≤ 15.5 Liters
Warranty		Min 5 years OEM onsite comprehensive warranty.

Required Certification

S#	Category of Standard	Description	Name of Certification
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS 13252(Part1):2010/ IEC 60950 Part1:2005/ UL Certification/ Equivalent Indian Standard
		Certification for Electro Magnetic Interference/Radiation under control	FCC/Equivalent certification from NABL approved Lab
		Restriction of Hazardous Substances in manufacturing	India WEEE & India RoHS/ International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or higher/ Equivalent BEE Star rating
3.	Environmental Standards	Environmental Protection Standard	EPEAT/ Equivalent Indian Standard
4.	ISO standard	ISO 9001	ISO 9001

Additional Items

1. 1x64 GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16xGB DDR-IV (2933).
3. 1 TB SSD in lieu of 512 GB SSD.
4. 21.5-inch Monitor TCO 8 (1980x1080) in lieu of 19.5 Inch Monitor.
5. Dos/Linux in lieu of Windows 11 Professional 64 bit Operating Systems.
6. Windows STF (Shape the future Program) in lieu of Windows 11 Professional 64 bit Operating Systems.
7. Internal Wi-Fi Card.

AMD Processor Based Computer Systems

Category-III AMD (Top Management High End Programming/Development):

Type	Parameter	Required Minimum Specification
Processor	Generation	AMD Ryzen 7, 5000 Series or higher
	CPU Architecture	x64
	Speed (Min Base Frequency)	3.8 GHz or higher
	Cores	Min. 8
	Threads	Min. 16
	Cache	20 MB or higher
Mother Board	Sound/ Audio System	Integrated
	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable up to 64 GB (Min. 2 DIMM)
	Video Graphics	Integrated Graphics
	PCI Slot	Minimum 1 PCI Express x 16
Hard disk Drive	512 GB SSD + 1 TB SATA (7200 RPM) or 1 TB SSD or higher capacity.	
Display	Screen Size	19.5" or more TCO 08 certified
	Display Technology	Active Matrix TFT LCD (Backlit LED)
	Resolution	1600x900 or higher
Keyboard	Standard USB OEM make	
Mouse	Optical/Laser USB OEM make	
Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM or Higher
	Additional OS supported	Linux
Miscellaneous	Ports, Security & Misc	Minimum 6 USB Ports (Out of which 3 USB 3.0 ports and minimum 2 USB ports should be at front), 10/100/1000 Ethernet Card, 1x VGA/DP, 1x Display Port/HDMI, Microphone & Stereo Headphone/ Combo port and other standard ports, TPM 2.0 or higher.
	Power Supply	260 W or less Power supply ($\geq 85\%$ efficient), Active PFC or higher
	Volume	≤ 15.5 L
Warranty		Min 5 years OEM onsite comprehensive warranty.

Required Certification

S#	Category of Standard	Description	Name of Certification
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS 13252(Part1):2010/ IEC 60950 Part1:2005/ UL Certification/ Equivalent Indian Standard
		Certification for Electro Magnetic Interference/Radiation under control	FCC/Equivalent certification from NABL approved Lab
		Restriction of Hazardous Substances in manufacturing	India WEEE & India RoHS/ International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or higher/ Equivalent BEE Star rating
3.	Environmental Standards	Environmental Protection Standard	EPEAT/ Equivalent Indian Standard
4.	ISO standard	ISO 9001	ISO 9001

Additional Items

1. 1x64 GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16xGB DDR-IV (2933).
3. 1 TB SSD in lieu of 512 GB SSD.
4. 21.5-inch Monitor TCO 8 (1980x1080) in lieu of 19.5 Inch Monitor.
5. Dos/Linux in lieu of Windows 11 Professional 64 bit Operating Systems.
6. Windows STF (Shape the future Program) in lieu of Windows 11 Professional 64 bit Operating Systems.
7. Internal Wi-Fi Card.

Intel Processor Based Laptops

Category-I (Intel) (Normal Office Function Laptop)

	Type	Parameter	Specification
1.	Processor	Generation	Intel® Core™ i3 Processor 12 th Generation or higher
		CPU Architecture	x64
		Efficient Core Max Turbo Frequency	3.30 GHz or higher
		Performance-core Max Turbo Frequency	4.40 GHz or higher
		CPU Cores	Minimum 6
		CPU Threads	Minimum 8
		Cache	Minimum 10 MB or higher
		Wireless Connectivity	IEEE 802.11 ax (Wi-Fi 6), Integrated Bluetooth 5.1
2.	Motherboard	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable upto 32 GB (with one DIMM free) or higher
		Video Graphics	Integrated HD Graphics or better
		Sound System	Integrated Stereo Speaker
3.	Hard Disk Drive		(256 GB SSD + 1TB SATA HDD) or (512 GB SSD) or higher
4.	Display	Screen Size	14.0" or higher
		Display Technology	Anti-glare LED Backlit Display
		Resolution	1366 x 768 or higher
		Web Camera	Integrated HD Web Camera (720p or higher)
5.	Keyboard		Normal Keyboard with Touchpad
6.	Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM
		Additional OS Supported	Linux
7.	Miscellaneous	Ports	Minimum 3 USB ports out of which 1 port should be USB 3.0 or higher and 1 port shall be Type C port with docking support, 10/100/1000 Ethernet Card, VGA/HDMI, Microphone, Stereo Headphone, and other standard ports.
		Weight with Battery	Less than 2 Kg
		Battery Backup	Minimum 6 hours
		Security	TPM 2.0 or higher
		Warranty	Minimum 3 years OEM on-site comprehensive warranty including battery
		Carry Case, charging adaptor	Good quality carry case/bag, Charging Adapter

Certification required: -

S#	Category of Standard	Description	Name of Certification.
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS13252 (part1):2010/IEC60950 Part1:2005/UL certification/Equivalent Indian Standard
		Certification for Electrical magnetic Interference/ Radiation under control	FCC/Equivalent certification from NABL approved Lab,
		Restriction of Hazards Substance in manufacturing	India WEEE & India RoHS/International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or Higher/Equivalent BEE Star rating
3	Environmental Standards	Environmental protection standard	EPEAT/Equivalent Indian Standard
4	ISO Standards	ISO 9001	ISO 9001

Add on items: -

1. 1x16GB DDR-IV RAM (2933 MHz).
 2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16 GB DDR-IV RAM.
 3. 1 TB SSD in lieu of 512 GB SSD.
 4. Dos/Linux in lieu of Windows 11 Professional.
- Windows STF (Shape the Future) in lieu of Windows 11 Professional 64 bit Operating Systems

AMD Processor Based Laptops

Category-I (AMD) (Normal Office Function Laptop)

	Type	Parameter	Specification
1.	Processor	Generation	AMD Ryzen 3, 5000 Series or Higher.
		CPU Architecture	x64
		Speed (Min Base frequency)	2.7 GHz or higher
		Boost Clock Frequency	4.1 GHz or higher
		CPU Cores	Minimum 4
		CPU Threads	Minimum 8
		Cache	Minimum 10 MB or higher
		Wireless Connectivity	IEEE 802.11 ax (Wi-Fi 6), Integrated Bluetooth 5.1
2.	Motherboard	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable upto 32 GB (with one DIMM free) or higher
		Video Graphics	Integrated HD Graphics or better
		Sound System	Integrated Stereo Speaker
3.	Hard Disk Drive		(256 GB SSD + 1TB SATA HDD) or (512 GB SSD) or higher
4.	Display	Screen Size	14.0" or higher
		Display Technology	Anti-glare LED Backlit Display
		Resolution	1366 x 768 or higher
		Web Camera	Integrated HD Web Camera (720p or higher)
5.	Keyboard		Normal keyboard with Touchpad
6.	Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM
		Additional OS Supported	Linux
7.	Miscellaneous	Ports	Minimum 3 USB ports out of which 1 port should be USB 3.0 or higher and 1 port shall be Type C port with docking support, 10/100/1000 Ethernet Card, VGA/HDMI, Microphone, Stereo Headphone, and other standard ports.
		Weight with Battery	Less than 2 Kg
		Battery Backup	Minimum 6 hours
		Security	TPM 2.0 or higher
		Warranty	Minimum 3 years OEM on-site comprehensive warranty including battery
		Carry Case, charging adaptor	Good quality carry case/bag, Charging Adapter

Certification required: -

S#	Category of Standard	Description	Name of Certification.
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS13252 (part1):2010/IEC60950 Part1:2005/UL certification/Equivalent Indian Standard
		Certification for Electrical magnetic Interference/ Radiation under control	FCC/Equivalent certification from NABL approved Lab,
		Restriction of Hazards Substance in manufacturing	India WEEE & India RoHS/International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or Higher/Equivalent BEE Star rating
3	Environmental Standards	Environmental protection standard	EPEAT/Equivalent Indian Standard
4	ISO Standards	ISO 9001	ISO 9001

Add on items: -

1. 1x16GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16 GB DDR-IV RAM.
3. 1 TB SSD in lieu of 512 GB SSD.
4. Dos/Linux in lieu of Windows 11 Professional.

Windows STF (Shape the Future) in lieu of Windows 11 Professional 64 bit Operating Systems

Intel Processor Based Laptops

Category-II (Intel) (Middle/Higher Management Mid-Scale Development Laptop)

	Type	Parameter	Specification
1.	Processor	Generation	Intel® Core™ i5 Processor 12 th Generation or higher
		CPU Architecture	x64
		Efficient Core Max Turbo Frequency	3.10 GHz or higher
		Performance-core Max Turbo Frequency	4.40 GHz or higher
		CPU Cores	Minimum 8
		CPU Threads	Minimum 12
		Cache	Minimum 12 MB or higher
		Wireless Connectivity	IEEE 802.11 ax (Wi-Fi 6), Integrated Bluetooth 5.1 or higher.
2.	Motherboard	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable upto 32 GB (with one DIMM free) or higher
		Video Graphics	Integrated HD Graphics or better
		Sound System	Integrated Stereo Speaker
3.	Hard Disk Drive		(512 GB SSD + 1TB SATA HDD) or (1 TB SSD or higher)
4.	Display	Screen Size	14.0" or higher
		Display Technology	Anti-glare LED Backlit Display
		Resolution	1920x1080 or higher
		Web Camera	Integrated HD Web Camera (720p or higher)
5.	Keyboard		Spill Resistant backlit keyboard with Touchpad
6.	Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM
		Additional OS Supported	Linux
7.	Miscellaneous	Ports	Minimum 4 USB ports out of which 2 port should be USB 3.0 or higher and 1 port shall be Type C port with docking support, 10/100/1000 Ethernet Card, VGA/HDMI, Microphone, Stereo Headphone, and other standard ports.
		Weight with Battery	Less than 2 Kg
		Battery Backup	Minimum 6 hours
		Security	TPM 2.0 or higher
		Warranty	Minimum 3 years OEM on-site comprehensive warranty including battery
		Carry Case, charging adaptor	Good quality carry case/bag, Charging Adapter

Certification required: -

S#	Category of Standard	Description	Name of Certification.
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS13252 (part1):2010/IEC60950 Part1:2005/UL certification/Equivalent Indian Standard
		Certification for Electrical magnetic Interference/ Radiation under control	FCC/Equivalent certification from NABL approved Lab,
		Restriction of Hazards Substance in manufacturing	India WEEE & India RoHS/International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or Higher/Equivalent BEE Star rating
3	Environmental Standards	Environmental protection standard	EPEAT/Equivalent Indian Standard
4	ISO Standards	ISO 9001	ISO 9001

Add on items: -

1. 1x16GB DDR-IV RAM (2933 MHz).
 2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16 GB DDR-IV RAM.
 3. 1 TB SSD in lieu of 512 GB SSD.
 4. Dos/Linux in lieu of Windows 11 Professional.
- Windows STF (Shape the Future) in lieu of Windows 11 Professional 64 bit Operating Systems

AMD Processor Based Laptops

Category-II (AMD) (Middle/Higher Management Mid-Scale Development)

	Type	Parameter	Specification
1.	Processor	Generation	AMD Ryzen 5, 5000 Series or Higher
		CPU Architecture	x64
		Speed (Min Base frequency)	2.3 GHz or higher
		Boost Clock Frequency	4.3 GHz or higher
		CPU Cores	Minimum 6
		CPU Threads	Minimum 12
		Cache	Minimum 19 MB or higher
		Wireless Connectivity	IEEE 802.11 ax (Wi-Fi 6), Integrated Bluetooth 5.1
2.	Motherboard	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable upto 32 GB (with one DIMM free)
		Video Graphics	Integrated HD Graphics or better
		Sound System	Integrated Stereo Speaker
3.	Hard Disk Drive		(512 GB SSD + 1TB SATA HDD) or (1 TB SSD) or higher
4.	Display	Screen Size	14.0" or higher
		Display Technology	Anti-glare LED Backlit Display
		Resolution	1920x1080 or higher
		Web Camera	Integrated HD Web Camera (720p or higher)
5.	Keyboard		Spill Resistant backlit keyboard with Touchpad
6.	Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM
		Additional OS Supported	Linux
7.	Miscellaneous	Ports	Minimum 4 USB ports out of which 2 port should be USB 3.0 or higher and 1 port shall be Type C port with docking support, 10/100/1000 Ethernet Card, VGA/HDMI, Microphone, Stereo Headphone, and other standard ports.
		Weight with Battery	Less than 2 Kg
		Battery Backup	Minimum 6 hours
		Security	TPM 2.0 or higher
		Warranty	Minimum 3 years OEM on-site comprehensive warranty including battery
		Carry Case, charging adaptor	Good quality carry case/bag, Charging Adapter

Certification required: -

S#	Category of Standard	Description	Name of Certification.
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS13252 (part1):2010/IEC60950 Part1:2005/UL certification/Equivalent Indian Standard
		Certification for Electrical magnetic Interference/ Radiation under control	FCC/Equivalent certification from NABL approved Lab,
		Restriction of Hazards Substance in manufacturing	India WEEE & India RoHS/International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or Higher/Equivalent BEE Star rating
3	Environmental Standards	Environmental protection standard	EPEAT/Equivalent Indian Standard
4	ISO Standards	ISO 9001	ISO 9001

Add on items: -

1. 1x16GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16 GB DDR-IV RAM.
3. 1 TB SSD in lieu of 512 GB SSD.
4. Dos/Linux in lieu of Windows 11 Professional.

Windows STF (Shape the Future) in lieu of Windows 11 Professional 64 bit Operating Systems

Intel Processor Based Laptops

Category-III (Intel) (Top Management High End Programming/Development Laptop)

	Type	Parameter	Specification
1.	Processor	Generation	Intel® Core™ i7 Processor 12 th Generation or higher
		CPU Architecture	x64
		Efficient Core Max Turbo Frequency	3.4 GHz or higher
		Performance-core Max Turbo Frequency	4.7 or higher
		CPU Cores	Minimum 12
		CPU Threads	Minimum 16
		Cache	Minimum 18 MB or higher
		Wireless Connectivity	IEEE 802.11 ax (Wi-Fi 6), Integrated Bluetooth 5.1 or higher
2.	Motherboard	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable upto 64 GB (with one DIMM free)
		Video Graphics	Integrated HD Graphics or better
		Sound System	Integrated Stereo Speaker
3.	Hard Disk Drive		(512 GB SSD + 1TB SATA HDD) or (1 TB SSD) or higher
4.	Display	Screen Size	14.0" or higher
		Display Technology	Anti-glare LED Backlit Display
		Resolution	1920x1080 or higher
		Web Camera	Integrated HD Web Camera (720p or higher)
5.	Keyboard		Spill Resistant backlit keyboard with Touchpad
6.	Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM
		Additional OS Supported	Linux
7.	Miscellaneous	Ports	Minimum 4 USB ports out of which 2 port should be USB 3.0 or higher and 1 port shall be Type C port with docking support, 10/100/1000 Ethernet Card, VGA/HDMI, Microphone, Stereo Headphone, and other standard ports.
		Weight with Battery	Less than 2 Kg
		Battery Backup	Minimum 6 hours
		Security	TPM 2.0 or higher
		Warranty	Minimum 3 years OEM on-site comprehensive warranty including battery
		Carry Case, charging adaptor	Good quality carry case/bag, Charging Adapter

Certification required: -

S#	Category of Standard	Description	Name of Certification.
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS13252 (part1):2010/IEC60950 Part1:2005/UL certification/Equivalent Indian Standard
		Certification for Electrical magnetic Interference/ Radiation under control	FCC/Equivalent certification from NABL approved Lab,
		Restriction of Hazards Substance in manufacturing	India WEEE & India RoHS/International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or Higher/Equivalent BEE Star rating
3	Environmental Standards	Environmental protection standard	EPEAT/Equivalent Indian Standard
4	ISO Standards	ISO 9001	ISO 9001

Add on items: -

1. 1x16GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16 GB DDR-IV RAM.
3. 1 TB SSD in lieu of 512 GB SSD.
4. Dos/Linux in lieu of Windows 11 Professional.

Windows STF (Shape the Future) in lieu of Windows 11 Professional 64 bit Operating Systems

AMD Processor Based Laptops

Category-III (Top Management High End Programming/Development)

	Type	Parameter	Specification
1.	Processor	Generation	AMD Ryzen 7, 5000 Series or Higher.
		CPU Architecture	x64
		Speed (Min Base frequency)	2.0 GHz or higher
		Boost Clock Frequency	4.5 GHz or higher
		CPU Cores	Minimum 8
		CPU Threads	Minimum 16
		Cache	Minimum 20 MB or higher
		Wireless Connectivity	IEEE 802.11 ax (Wi-Fi 6), Integrated Bluetooth 5.1
2.	Motherboard	Memory	1x16 GB DDR-IV (2933 MHz) or higher expandable upto 64 GB (with one DIMM free)
		Video Graphics	Integrated HD Graphics or better
		Sound System	Integrated Stereo Speaker
3.	Hard Disk Drive		(512 GB SSD + 1TB SATA HDD) or (1 TB SSD) or higher
4.	Display	Screen Size	14.0" or higher
		Display Technology	Anti-glare LED Backlit Display
		Resolution	1920x1080 or higher
		Web Camera	Integrated HD Web Camera (720p or higher)
5.	Keyboard		Spill Resistant backlit keyboard with Touchpad
6.	Operating System	Preloaded OS	Windows 11 Professional 64 bit OEM
		Additional OS Supported	Linux
7.	Miscellaneous	Ports	Minimum 4 USB ports out of which 2 port should be USB 3.0 or higher and 1 port shall be Type C port with docking support, 10/100/1000 Ethernet Card, VGA/HDMI, Microphone, Stereo Headphone, and other standard ports.
		Weight with Battery	Less than 2 Kg
		Battery Backup	Minimum 6 hours
		Security	TPM 2.0 or higher
		Warranty	Minimum 3 years OEM on-site comprehensive warranty including battery
		Carry Case, charging adaptor	Good quality carry case/bag, Charging Adapter

Certification required: -

S#	Category of Standard	Description	Name of Certification.
1.	Safety Standards	Safety of Electronics Products against Electrical Hazards	IS13252 (part1):2010/IEC60950 Part1:2005/UL certification/Equivalent Indian Standard
		Certification for Electrical magnetic Interference/ Radiation under control	FCC/Equivalent certification from NABL approved Lab,
		Restriction of Hazards Substance in manufacturing	India WEEE & India RoHS/International RoHS
2.	Energy Efficiency Standards	Energy Efficiency Standard	Energy Star 7.0 or Higher/Equivalent BEE Star rating
3	Environmental Standards	Environmental protection standard	EPEAT/Equivalent Indian Standard
4	ISO Standards	ISO 9001	ISO 9001

Add on items: -

1. 1x16GB DDR-IV RAM (2933 MHz).
2. 1x32GB DDR-IV RAM (2933 MHz) in lieu of 16 GB DDR-IV RAM.
3. 1 TB SSD in lieu of 512 GB SSD.
4. Dos/Linux in lieu of Windows 11 Professional.

Windows STF (Shape the Future) in lieu of Windows 11 Professional 64 bit Operating Systems