

**[A1]Minimum desired Technical specification of Core Switch:**

S. no	core Switch specifications	Compliance (Yes/No)	Page Reference in the datasheet & Remarks
1	switch architecture should be modular/chassis/stackable based		
2	switch should have redundant power supplies .		
3	switch should have wire-speed, non-blocking and distributed forwarding on all the ports		
4	Switch should have at least 4 members in fully meshed stacking from either front side or rear side.		
5	switch should have minimum of 270 Gbps or more data switching capacity (Gbps) per switch		
6	switch should have minimum of 200 Mpps or more L2/L3 throughput (Mpps) per switch		
7	switch should have minimum of 8 x 1000 Mbps RJ45 from day one		
8	Switch should have minimum 8 x 10G SFP + uplink ports with multimode Fiber LC interface from day one		
9	Switch should support up to 2 x 40G QSFP uplink port for future prospect		
10	The Switch should be stackable with minimum stacking Bandwidth of 40Gbps Full Duplex .All required stacking ports/modules and cables should be included from day one.		
11	Switch should support min 32 k MAC addresses and min 4K active VLANs		
12	Should have minimum 4 MB of packet buffer size for traffic to support huge file transfers.		
13	All Switches and Transceivers should be of same OEM make.		
14	Switch should support HA mode through HSRP/VC/ VPC/IRF/MLAC/VRRP /VSRP or equivalent		
15	Switch should have full layer 2 features like STP, RSTP, MSTP/PVST. LACP/IEEE802.3ad, ACL Qos andIGMPv1/v2/v3 .		
16	Switch should have full layer 3 features like PIM-DM, PIM-SM, RIPv1/v2, OSPF, BGP and PBR, VRRPv3, IPv6, GRE .		
17	Switch should support DoS attack prevention, ARP inspection, Loopback prevention, 802.1X authentication.		
18	Switch Should have 2GB RAM and 1GB Flash.		
19	Switch should have 8K IPv4 routes and 2K IPv6 Routes.		
20	The switch should support following certification and compliance : 1. FCC class A (Part 15) 2. RoHS-complaint (5 of 6 or higher) 3. WEEE- complaint 4. CAN/CSA-c22.2		

21	Should support 8 hardware queues per port and security protocols like RADIUS, TACACS/TACACS+, AAA, SCP/SFTP & SSH		
22	5 years comprehensive warranty support from OEM including 8 x 5 OEM direct Technical Assistance centre (TAC) support and Next Business Day Hardware replacement. Post installation, 5-year warranty of the product should reflect in the web site of the OEM. Alternatively, after installation the bidder should submit letter from OEM with system serial nos. confirming 5 years comprehensive OEM warranty. The warranty will include all firmware upgrades and updates for the hardware, free of cost.		
23	Switch should have dedicated out of band 10/100/1000 Base T Ethernet port and dedicated serial console port		
24	Operating Temperature should be 32°F to 104°F (0°C to 40°C), operating relative humidity 10% to 85% @ 104°F (40°C),		
25	All Switches series should be certified from EAL3/NDPP OR OEM should be in leader or challenger as per the 2016/latest Gartner wired /wireless LAN access infrastructure Magic Quadrant or Gartner DC Networking Magic Quadrant.		

[A2]

**Minimum desired Technical specification of Access switch :**

S. no	Access Switch Specifications	Compliance (Yes/No)	Page Reference in the datasheet & Remarks
1	Access Switch should have 48 ports of 10/100/1000 RJ45 and 2 ports of 1/10G SFP + .		
2	Access switch should support non-blocking switching fabric capacity of min 176 Gbps and min forwarding capacity of 101 Mpps.		
3	Access switch should support min 16k MAC addresses and min 2k active VLANs.		
4	Access Switch should have dedicated stacking ports of min stacking BW of 40Gbps with support of minimum 4 units stacking. All required stacking ports/modules and cables should be included		
5	Access Switch should support up to 8 hardware queues per port		
6	Access Switch should support full layer 2 features like STP, RSTP, MSTP, LAG,LACP, ACL, Qos, IGMP v1/v2 .		
7	Access Switch should support basic L3 features like IPv4 & IPv6 static routing, Layer 3/4 ACLs, ECMP, Virtual interfaces and routed interfaces.		
8	Access Switch should support advance layer 3 features like RIPv1/v2, Policy based routing (PBR)		
9	Should have minimum 4 MB of packet buffer size for traffic to support huge file transfers.		
10	The access switch should support IPv6 management features like IPv6 ping, IPv6 traceroute, IPv6 Trace route, IPv6 Telnet, IPv6 TACACS, IPv6 DNS, and IPv6 RADIUS		

11	All Switches and Transceivers should be of same OEM make.		
12	Access switch should support VLAN ACL OR source/destination IP address/subnet and source/ destination TCP/UDP port number ACL, Port ACL, and Ipv6 ACL		
13	Access switch should support SNMP v1/v2/v3, SSH, NTP and web/GUI management		
14	Should Support 1GB RAM /DRAM and 1GB Flash		
15	Switch should have dedicated out of band 10/100/1000 Base T Ethernet port and dedicated serial console port		
16	5 years comprehensive warranty support from OEM including 8 x 5 OEM direct Technical Assistance centre (TAC) support and Next Business Day Hardware replacement. Post installation, 5-year warranty of the product should reflect in the web site of the OEM. Alternatively, after installation the bidder should submit letter from OEM with system serial nos. confirming 5 years comprehensive OEM warranty. The warranty will include all firmware upgrades and updates for the hardware, free of cost.		
17	Operating Temperature should be 32°F to 104°F (0°C to 40°C), operating relative humidity 10% to 85% @ 104°F (40°C).		
18	The switch should support following certification and compliance : 1. FCC class A (Part 15) 2. RoHS-complaint (5 of 6 or higher) 3. WEEE- complaint 4. CAN/CSA-c22.2		
19	All Switches series should be certified from EAL3/NDPP OR OEM should be in leader or challenger as per the latest Gartner wired LAN access infrastructure Magic Quadrant or Gartner DC Networking Magic Quadrant.		

**Note:**

- **Total no of 10 G SFP+ fibre multimode LC interface should have 26 for both core switches and access switches uplink ports.**
- **All Networking including uplink module should be from the same OEM.**
- **Any Unique features and additional offerings in their products should be mention in Remark Colom.**
- **Kindly submit the quotation for Switches in US\$ (Annexure-C)**

**Terms & Condition-**

- **Approved make for L3/L2 Switches: Cisco/Juniper/ HP/Brocade/Extreme.**
- **The power consumption of each hardware must be specified separately.**
- **The noise/decibel levels while in operation must be specified for each hardware.**
- **Note: Vendors must submit product brochure, datasheet.**
- **The Bidder must visit/survey the site before submitting their offer (The same may be officially recorded).**
- **The Bidder shall attach the duly signed and stamped on each page of this Annexure - A documents as detailed under and place along with the Bid.**

### **Scope of Work:**

- The successful bidder (hereinafter System Integrator/SI) shall supply the required Networking components at ICGEB Campus, Aruna Asaf Ali Marg, New Delhi 110 067 .
- All the active switching equipment should be tested as live setup environment. After completion the testing, it should be deployed in live ICGEB Network. Purpose of testing is to avoid unnecessary network downtime
- Detailed SOW will be provided to only the successful bidder.
- The bidder shall undertake to install, test & commission all the supply Network Switches in the racks at required locations.
- The Core Switches to be in HA Mode & the Access Switches to be stacked wherever necessary according to the requirements of network points at each floor.
- The bidder shall integrate all existing infrastructure (servers, endpoints & end clients) with the proposed new setup.
- All floor switch stacks will be uplinked to core switches @ 20Gbps, hence from each stack, two numbers of 10 G link will be terminated at core switch over multimode fiber.
- Minimum downtime will be permitted, only on weekends. all necessary work related to weekend downtime must be completed before planning a downtime.
- The bidder shall supply all relevant documents/drawings/test certificates and manuals.
- The acceptance report shall be mutually signed between ICGEB and SI after successful supply, installation, commissioning of the Networking components.
- Any equipment, fitting, material, software or supplies which may not be specifically mentioned in the specifications but which are necessary for carrying out the contract works within the scope of the tender are to be provided for and rendered to by the SI. Such items not quoted by the bidder, if found necessary during execution of the contract, shall have to be supplied at no extra charge by the SI.
- The bidder shall ensure that migration from the current network setup to new network setup is done in such a way so that existing operation of LAN and business is minimally affected. The migration can be planned in a phased manner to achieve the minimal downtime and business continuity. The SI may therefore undertake a survey of the existing LAN setup before execution of the job.
- The bidder shall submit the project completion report to ICGEB once the network is established- PAYMENT linked?
- The bidder will undertake a training session for the IT staff at ICGEB.
- The bidder shall confirm that the BoM indicated in the tender document is completed in all respects. However, bidder can indicate any additional item if required.
- The bidder must specify if any civil/electrical work has to be undertaken before commissioning of the installation of new switches.
- The Bidder shall attach the duly signed and stamped on each page of this Annexure - A documents as detailed under and place along with the Bid.

