cPCI Based Advanced Launch Computer

Quantity – 20 sets.

1 System Description:

The cPCI Based Advanced Launch Computer will consist of

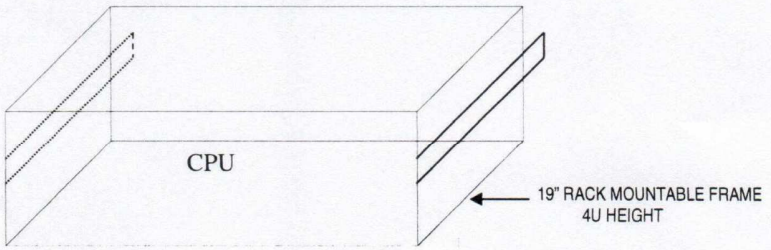
- CPU which will be 19" rack mountable unit with Maximum depth of 450mm and Max. Height of 4U.
- Monitor and keyboard together which will be a separate 19" rack mountable foldable assembly of Max. Height 2 U.
- Slide assembly for both the above units
- Interconnection cables & power cables

2 System Specifications

2.1 Mechanical Configuration

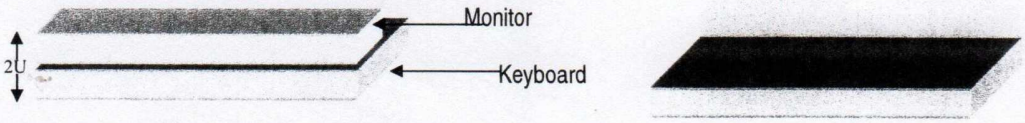
The description of the mechanical assembly is given in the following section.

CPU unit will be a 19" rack mountable unit. The height should be maximum 4U. It should have slides on the sides for mounting on the rack. It should have provision to close the cabinet from rear side.



2.2 Foldable Monitor and keyboard assembly

Each of these will be of height maximum 1 U with total height maximum 2U and will be 19" rack mountable. It should have slides on the sides for mounting on the rack.



- All the cables required for connecting the monitor/keyboard assembly to the CPU should be provided by the vendor.
- The power adapter also should be provided, if required.

- A switch/button should be provided on the front panel for Power On/OFF to the CPU Unit.

2.3 *Electrical Configuration*

The industrial computer should have the following parts:

2.3.1 CPU Card Specification

Acceptable Make: Aitech / Kontron / Adlink / Abaco / Advantech

3U cPCI based on Intel Core i7 latest generation processor

Processor	: Quad-core or latest generation Intel Core i7 processor
Speed	: 2.5 GHz or higher
Chipset	: Intel QM87 or higher
L2 cache	: 6 MB
RAM	: 8 GB DDR3 ECC soldered memory (SDRAM) or higher
Disk drive	: 1 TB SDD (MLC Type)
USB	: Min. 3 ports, with one port on the rear side and 2 USB port are to be terminated on front panel with cover.
Ethernet	: 3 independent Gigabit Ethernet ports based on Intel Controller, All preferably on rear side.
Graphics	: **Nvidia GTX 1050 Ti** or higher (may be integrated on the SBC or as discrete card) One DVI-I port, one Display Port, supports up to QXGA 2048x1536 pixels@75Hz, 32-bits

- Power: 230 V AC+- 15%.
- Minimum 2 Free cPCI Slots
- Operating Temperature: -20 to +70 deg C
- Plug-in type cPCI power module.
- Forced air cooling with fan.
- Status indicators for Power, HDD, cooling fan etc.

2.3.2 Key board monitor assembly

Monitor : 18.5" or 19" LCD Full HD, 1920x1080 or more, 36 bit Colour
Contrast - 1000:1 or Higher; Brightness - 450 nits or Higher

- Membrane based Keyboard with 84 keys or more.
- Integrated mouse should be available on the keyboard panel (Resistive touch pad type).
- KVM assembly should be of plug & play type.

2.3.3 Connector configuration

- All the connectors to be terminated on the rear side
- Two USB ports are to be terminated on the front panel with cover.

2.4 *Software:*

- Software support for Linux Operating system.
- Drivers for accessing all the resources in RHEL 7.5 or higher should be provided.
- Test programs along with source code for exercising all the resources to be provided.
- Operating System: Red Hat Enterprise Linux 7.5 or Higher (Workstation Version)

2.5 Environmental Specifications / Testing:

- One unit is to be selected randomly and batch acceptance tests are to be carried out on this unit.as per QA Documents Mentioned in Para 2.6(a,b,c)
- All the tests are under the scope of vendor
- The test facility may be provided by ASL free of cost.
- Arrangement of all test setups, fixtures will be the responsibility of the vendor.

2.6 Inspection & Acceptance: By R&QA, ASL as per the following document nos.

a. Quality Requirements for cPCI Based Advanced launch Computer, Doc No. ASL/21/R&QA/QAP3./TEMP-8, Rev. No: 00, Dated: 19/06/2020
b. Quality Assurance Requirements for Series III & II Connectors – Avionic Subsystems, Doc No. ASL/21/R&QA/QAP3/2143, Revision No.: 03, Dated: 27/01/2015
c. General QR (Mechanical) for Fabrication of Mechanical Components/assemblies for Ground Support Equipments (GSEs), Doc No. ASL/21/R&QA/QAP3/405, Dated: 16/01/2015

2.7 Warranty:

2 years

2.8 Delivery period:

8 months from the date of supply order.

2.9 Place of Delivery, Installation and commissioning:

a. Place of Delivery: 0208 CH Building, ASL SINT, RCI Campus, Vigyankancha, Hyderabad - 500069

b. Installation and commissioning to be performed at: ASL SINT, RCI..

2.10 General Notes:

1. The systems should be preloaded with Red Hat Enterprise Linux 7.5 or higher workstation version. All the resources should have software driver compatible with Red Hat Enterprise Linux 7.5 or higher. Source code for all the drivers should be provided. Test programs for testing all the resources should be provided with source code (compatible with RHEL 7.5 or higher). The **vendor should demonstrate the functionality of all the resources** through the same test programs **before the final clearance and acceptance**.
2. Slide assembly to be provided along with the units to mount in the rack for display/keyboard assembly and CPU.
3. COC should be supplied, wherever applicable.
4. Systems should be delivered in rugged light weight packaging.

Date: 26/11/2019

3 List of deliverables

Sl. No.	Item	Quantity
1.	**cPCI based Advanced Launch Computer**	**20 Sets**
	a. Linux Driver software and sample test programs for all resources	1 Set
	b. Red Hat Enterprise Linux 7.5 or higher Workstation version license media with technical support.	2 Nos.
	c. External USB DVD Drive	5 Nos.
	d. 3 U cPCI XMC Carrier Card	5 Nos.
	e. Display Port to VGA adaptor with Display Port patch cable of length 3m	10 Nos.
	f. VGA Splitter with 8 port for extending VGA output up to 50m	5 Nos.
	g. Cat 6 Gigabit Ethernet cables terminated with RJ45 connectors – 10m length	20 Nos
	h. Cat 6 Gigabit Ethernet cables terminated with RJ45 connectors – 5m length	20 Nos

TABLE-2.2: BATCH ACCEPTANCE TEST SPECIFICATIONS *for* CLASS-2B GSE **with LCD Display[1]**				
No	Test	Specification	Reference No.	REMARKS
1.	High Temperature	+55°C±3°C for 4 Hrs.	--	PREET, INSET, POET. INSET in last 30mint.
2.	Low Temperature	–20°C±3°C for 4 Hrs.	--	PREET, INSET, POET. INSET in last 30mint.
3.	Damp Heat	45°C (RH 95%) for 8 Hrs	--	PREET, INSET, POET. INSET at 7 ½ Hr.
4.	Vibration (Three axes)	Random Vibration: 5 – 20 Hz: (6db per octave) desirable 20 – 50Hz : 0.02 g^2/Hz, then rolling down to 0.001g^2/Hz at 500 Hz. *Thirty minutes cumulative* for 3 axes.	--	PREET, INSET, POET

TABLE – 2.3: ENTEST APPLICABILITY MATRIX FOR THE ITEMS

S.No.	GSE	EMI/ EMC	ESS#	DAMP HEAT	High Temp.	Low Temp.	Ran. Vibr.
1.	**cPCI Based Advanced Launch Computer**	NA	**A**	**A**	NA	NA	NA
1.1	• **KVM (Monitor + Keyboard) module**	NA	NA	**A**	**A**	**A**	**A**

#: KVM module contains LDC display. So, shall undergo HT, LT, Random Vibration instead of ESS.

6. Mechanical QAP: The Mechanical QAP is attached

7. **Quality Control:**

a. **General:**

- Detailed process-sheet-cum traveler card shall be maintained.
- The customer QC stages shall be clearly specified in QA Plan/Process Flow-chart indicating either of Witness/Verification (as relevant).
- Test report shall indicate the name of the operator/technician & the Internal QC Inspector.
- The internal QC shall maintain certificates & records of all the processes. A complete Report shall be submitted to the Inspection agency.
- SMD components to be soldered by REFLOW soldering method and through-hole components to be soldered by hand soldering. In case an SMT machine is to be used the same to be approved by R&QA, ASL and if the assembly of PCB is out sourced the sub-vendor needs to be approved by R&QA.
- Test cables, test jigs and test software shall be cleared by QA agency before using.

b. **Workmanship:**

- Workmanship shall conform to standard practices suitable to Missile applications.
- Solder alloy shall conform to J-STD-006B(63/37) & solder paste to J-STD-005.
- Flux shall be electronic grade (RMA type) conforming to MIL-F-14256F/J-STD-004.
- The conformal coating shall conform to MIL-P-46058 , silicone1-2577