

PURCHASE SPECIFICATIONS

FOR

SET OF

TB INTERFACING ELECTRONICS CARDS

FOR

BHEL Bpl-CoMoS



SPECIFICATION NO. : PS407170

REVISION NO. : REV 00


DATE OF REVISION : 27/01/2016

DISTRIBUTION : AS PER REQUIREMENT

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ISSUED BY

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GENERAL SPECIFICATIONS: Set of TB interfacing electronics cards for BHEL Bpl-CoMoS

The specification is in two parts namely part-A related to technical requirements of this tender specification and part- B related to commercial requirements of these tender specifications.

Supplier to ensure the following while submitting the bid:

There should be one sealed envelope mentioning enquiry number and opening date on top of envelope. This envelope should consist of two sealed individual envelopes – one for technical bid and another for commercial bid. Enquiry No., opening date and bid type i.e. Technical / Commercial should also be mentioned on each individual envelope. On tender opening date only technical bid will be opened while commercial bid will only be opened for those parties who would be found technically suitable acceptable by BHEL in line with technical requirement of the specifications.

PART-A (Technical Requirements)

1. GENERAL

This specification covers the requirements of infrastructure, quality of manpower considered essential for quality and reliability of design, development, manufacturing, testing & supply of various high tech Electronics cards/modules involving multilayer PCBs, ASICs, SMT components and digital electronics components.

The supplier should confirm availability of the required infrastructure and manpower in technical bid as given in this specifications.

a INFRASTRUCTURE FACILITIES

The supplier should have the following manufacturing facilities:

1. Dust Free environment for card assembly.
2. Stencil Printer.
3. Automatic Glue Dispenser
4. High speed component placement machine
Following features would be preferred:
 - Board size capability - 475 mm x 300 mm min.
 - Placement Range - 0603 to SOIC's, 0402 compatible
5. Dual wave Soldering machine
6. 4 zone Reflow oven
7. Digital / Analog Temperature controlled solder stations.
8. Component lead forming machines.
9. Details of Electrostatic discharge protection & ESD procedure adopted to be submitted with offer.
10. Semi-Automatic component insertion machines.

b. TESTING FACILITIES:

The supplier should have the following test facilities:

- (a) Digital oscilloscope Dual channel Min.100 MHZ Band width with following advance features would be preferred. .
 - Advanced signal processing
 - TDR measurement
 - Eye pattern analyzer
 - Cross talk and ringing analysis

- (b) Spectrum analyzer with following features preferably:-
 - Electromagnetic Interference Analysis.
 - High frequency analysis.
 - Harmonic Distortion Measurement.
 - AM / FM Measurement

- (c) Multi channels / 100 MHZ band width logic analyzer
- (d) Multi channels Digital Pattern Generator.
- (e) Computer added Functional Testing facilities for electronic card.

c. Qualified Manpower

Supplier should have at least engineering graduate (electronics) who would be responsible for execution of order. Experience in multilayer PCB manufacturing using latest state of art technology components like SMT, digital electronics components would be preferred. Technical persons responsible for the execution of the contract should be competent enough to substitute / suggest suitable alternatives for the components which are getting obsolete / not available in the market .

Based on technical bid received from supplier , BHEL may depute their team of engineers for on spot inspection at supplier works for confirmation of infrastructure facilities available with the party before considering them for assigning the contract.

d. Experience

Supplier to confirm at least 2 orders have been executed by them involving latest state of art components as mentioned in the specification. Supplier to submit copies of purchase order /contract of such orders executed in past. Supplier should be thoroughly conversant with the latest electronics control rack technology.

e. Willingness for Confidentiality Agreement

Supplier to confirm their willingness for unconditional confidentiality agreement on stamp paper as per the attached **annexure A** to qualify for their consideration in technical scrutiny of tender.

2. SCOPE OF WORK & Technical requirement

1. SCOPE :

This specification applies to the requirement of TB interfacing electronics cards for BHEL Bpl-CoMoS

Following items are included in the requirement of this purchase specification:

I. ITEM 1 (BP9048107164) comprising of following set of TB interfacing cards for GT:

- | | |
|---|--------|
| a) TB interfacing card 219.1/GN/HM/IL as per BHEL dwg no. 36730100004 | 1 no. |
| b) TB interfacing card 219.1/EP as per BHEL dwg no. 36730100005 | 1 no. |
| c) TB interfacing card 219.1/FO as per BHEL dwg no. 36730100006 | 1 no. |
| d) TB interfacing card 219.1/ABCRST as per BHEL dwg no. 36730100008 | 1 no. |
| e) Cable harness accessories: | |
| a. ELS4850 | 1 no. |
| b. 17D-CLW-506206 | 13 no. |
| c. 17D-CLW-506217 | 38 no |

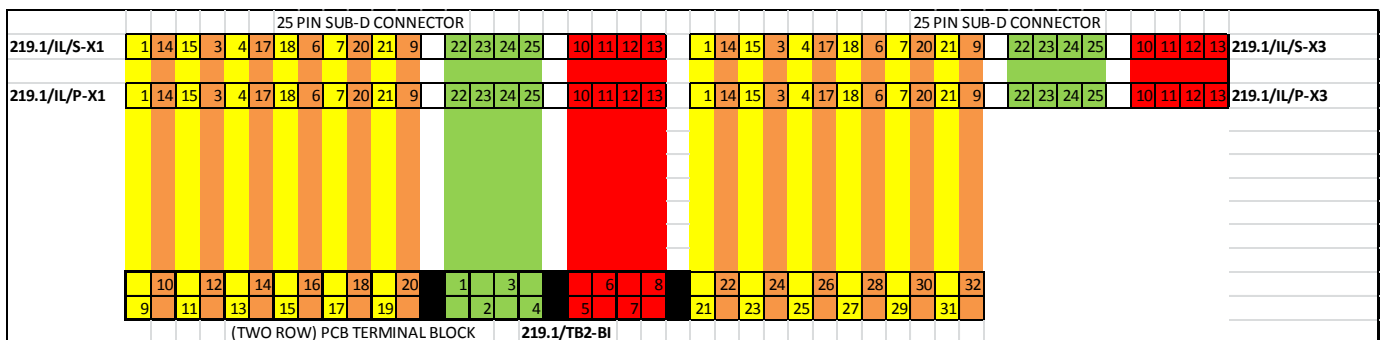
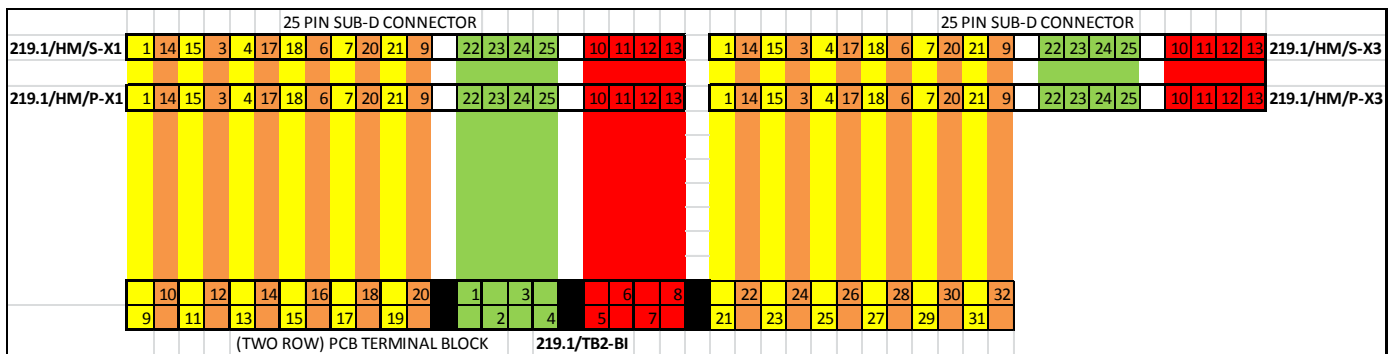
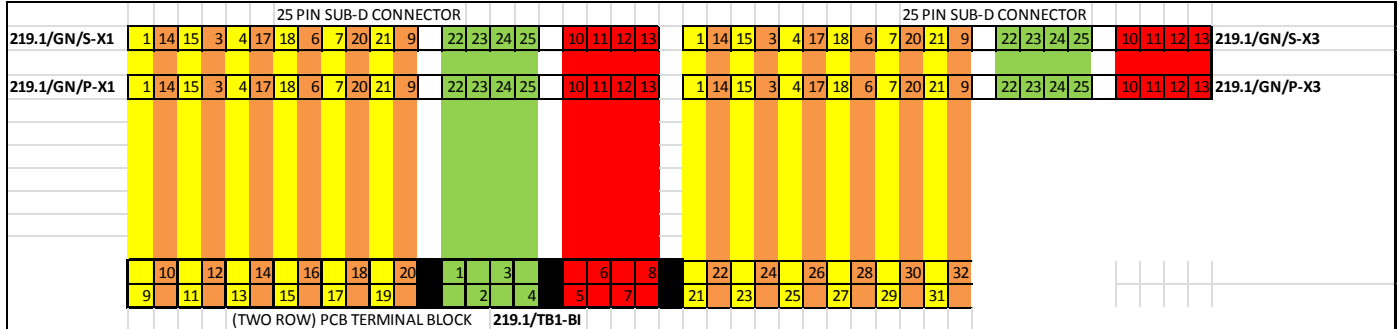
II. ITEM 2 (BP9048107172) comprising of following set of TB interfacing cards for ICT:

- | | |
|---|--------|
| a) TB interfacing card 219.1/GN/HM/IL as per BHEL dwg no. 36730100004 | 1 no. |
| b) TB interfacing card 219.1/EP as per BHEL dwg no. 36730100005 | 1 no. |
| c) TB interfacing card 219.1/FO as per BHEL dwg no. 36730100006 | 1 no. |
| d) TB interfacing card 219.1/DQ as per BHEL dwg no. 36730100007 | 1 no. |
| e) TB interfacing card 219.1/ABCRST as per BHEL dwg no. 36730100008 | 1 no. |
| f) Cable harness accessories: | |
| a. ELS4850 | 1 no. |
| b. 17D-CLW-506206 | 13 no. |
| c. 17D-CLW-506217 | 38 no |

1.0 TB interfacing card 219.1/GN/HM/IL

Mechanical dimensions & connector type: as per BHEL dwg no. 36730100004

Schematic (TRACK SIZE SHOULD NOT BE LESS THAN 70 MICRONS)

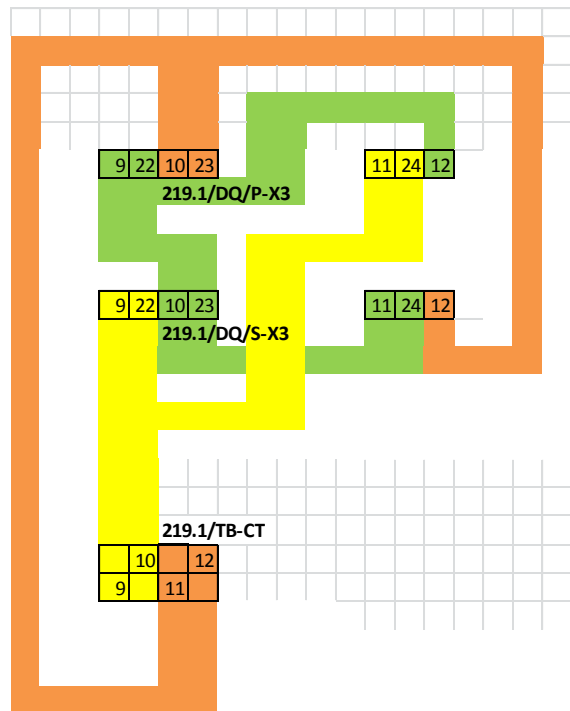
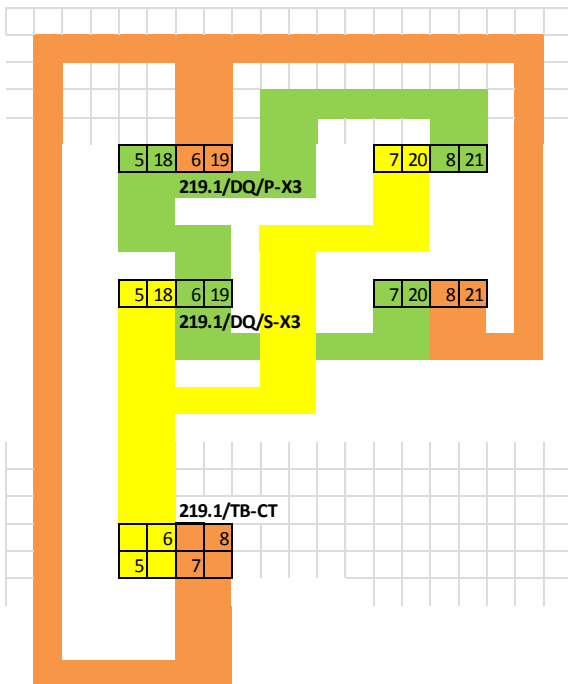
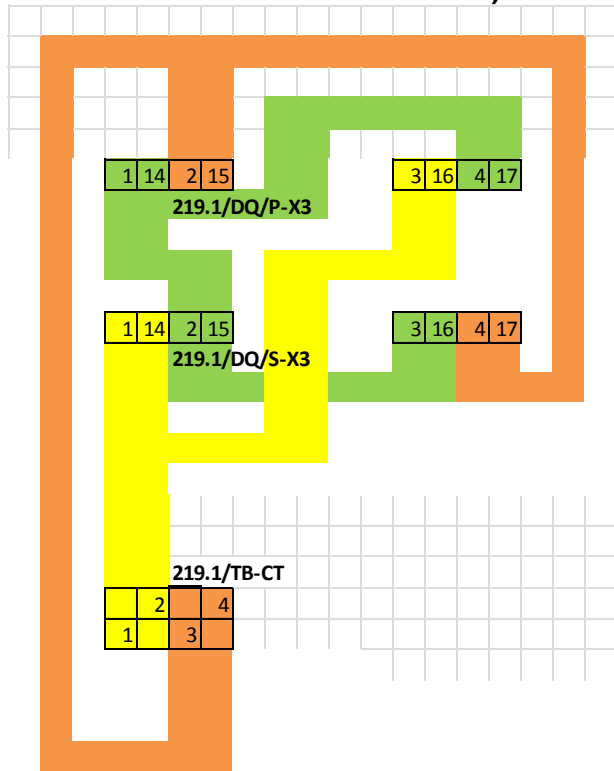
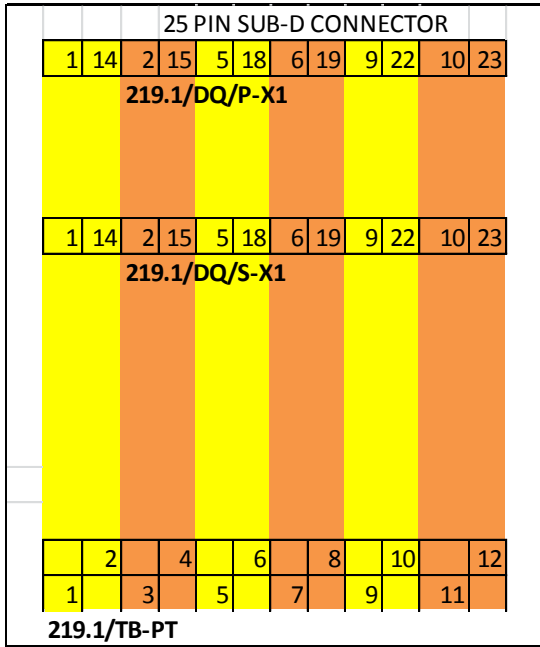


NOTE: gnd to be shorted to the body gnd

4.0 TB interfacing card 219.1/DQ

Mechanical dimensions & connector type: as per BHEL dwg no. 36730100007

Schematic (TRACK SIZE SHOULD NOT BE LESS THAN 70 MICRONS)

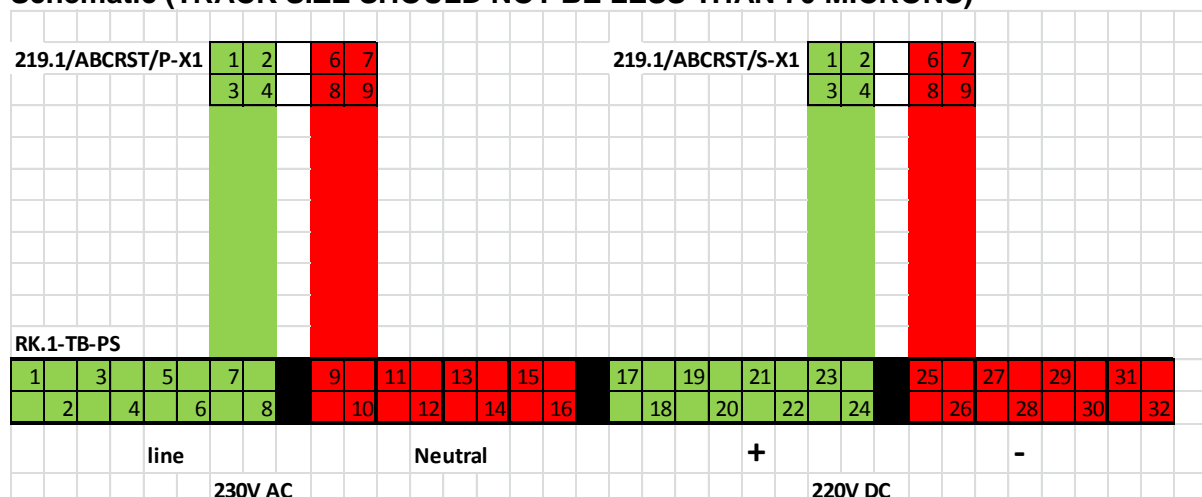


NOTE: gnd to be shorted to the body gnd

5.0 TB interfacing card 219.1/ABCRST

Mechanical dimensions & connector type: as per BHEL dwg no. 36730100008

Schematic (TRACK SIZE SHOULD NOT BE LESS THAN 70 MICRONS)



3. QUALITY OF ELECTRONIC CARD ASSEMBLY:

The module shall be used in Power plants, the quality of the assembly, soldering, handling of the components & assembled cards (EMI/EMC), sourcing of semiconductor components are of vital importance. Therefore, each of the above should be carefully monitored and sources of the components must be from OEM/reputed international firms who adhere to strict quality norm.

To improve, maintain Quality, and highest level of reliability, it is essential to generate statistical data of any failure during testing and also after burn in, rework done. So that improvement in the assembly and process can be analyzed. Supplier should provide the statistical report to BHEL.

4. CONFORMAL COATING OF THE PCB'S:

Conformal coating is very essential for long life and trouble free operation in dusty and hazardous environment. It is recommended multiple layers of coating is applied on each PCB's and proper time delay between two layers of coating is followed.

CAUTION:

1. Before applying coating, the PCB's should be tested in all respect.
2. All contacts for connectors and test points must be protected thoroughly by providing suitable cover on it. This cover only be opened after the coating is dried up.
3. Standard EMI/EMC protective norms must be followed during the entire process.

5. WARRANTY.

PCB modules along with all the components mounted thereon shall be guaranteed for 24 months from the date of supply or 18 months from date of commissioning whichever is earlier.

6. Documents to be furnished along with offer

- i) General arrangement drg indicating mounting details, weight and terminations
- ii) Technical data sheet along with the downloadable application software and code for the processor.
- iii) The schematic/PCB layouts of the card to be developed by the supplier in close consultation with BHEL. **Supplier to get final schematic of the electronics cards approved from BHEL before going for production.**

7. Documents required along with consignment

- i) User manual 6 copies

PART-B (COMMERCIAL REQUIREMENTS)

Bidder to submit commercial bid including details of scope of work , basis for scope of work and necessary price breakup for scope defined in 2 A/I & 2A/II of this specification and as BHEL enquiry calls for. Bid should also contain delivery time and payment terms, warranty offered for bidder's scope of work etc.

The commercial bid has to be kept in separate sealed envelope.