INTERFACE BOARD FOR INTERFACING
PC/104 BUS-BASED SBC MODULES WITH
EURO BUS-BASED BOARDS

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A family of microcomputer boards on a proprietary bus called ‘EURO bus’, along with signal conditioning and power supply boards was developed in Reactor Control Division (Refer BARC Newsletter No. 202, November 2000 with news title, “Microcomputer boards for safety critical systems of Nuclear Power Plants and other high reliability industrial applications”). These development efforts ensured self-reliance on delivering reliable computer-based safety critical systems of NPP and other high reliability industrial systems. These boards have been used in safety critical systems like Programmable Digital Computer System (PDCS), Reactor Regulating System (RRS), Process Control System (PCS) and Fuel Handling Control System (FHCS) in Kaiga-1, 2 and RAPP-3, 4, and are being used in various control systems of TAPP-3, 4. More than 5000 boards of this family are already in use in various C&I systems.

Now, an Interface board has been designed at Reactor Control Division for interfacing SBC modules based on PC/104 bus to proprietary ‘EURO’ bus. With this interface board, the full family of proprietary ‘EURO’ bus-based Microcomputer boards developed at RCnD can be interfaced with the commercially available PC/104 bus-based SBC modules. This development provides a platform for developing customised I/O intensive embedded systems requiring high processing power. Use of PC/104 bus-based SBC module ensures upgradability and protects against chip obsolescence and supply denial.

The Interface board sits on the proprietary ‘EURO’ bus, while PC/104 bus-based SBC module is mounted as a mezzanine board on this interface board. The signal connections are through stackable PC/104 connector. A prototype Interface board has been fabricated, assembled and successfully tested at RCnD. This Interface board is being currently used in the core simulation computer for testing of microcomputer-based Apsara Reactor Regulating System at RCnD.