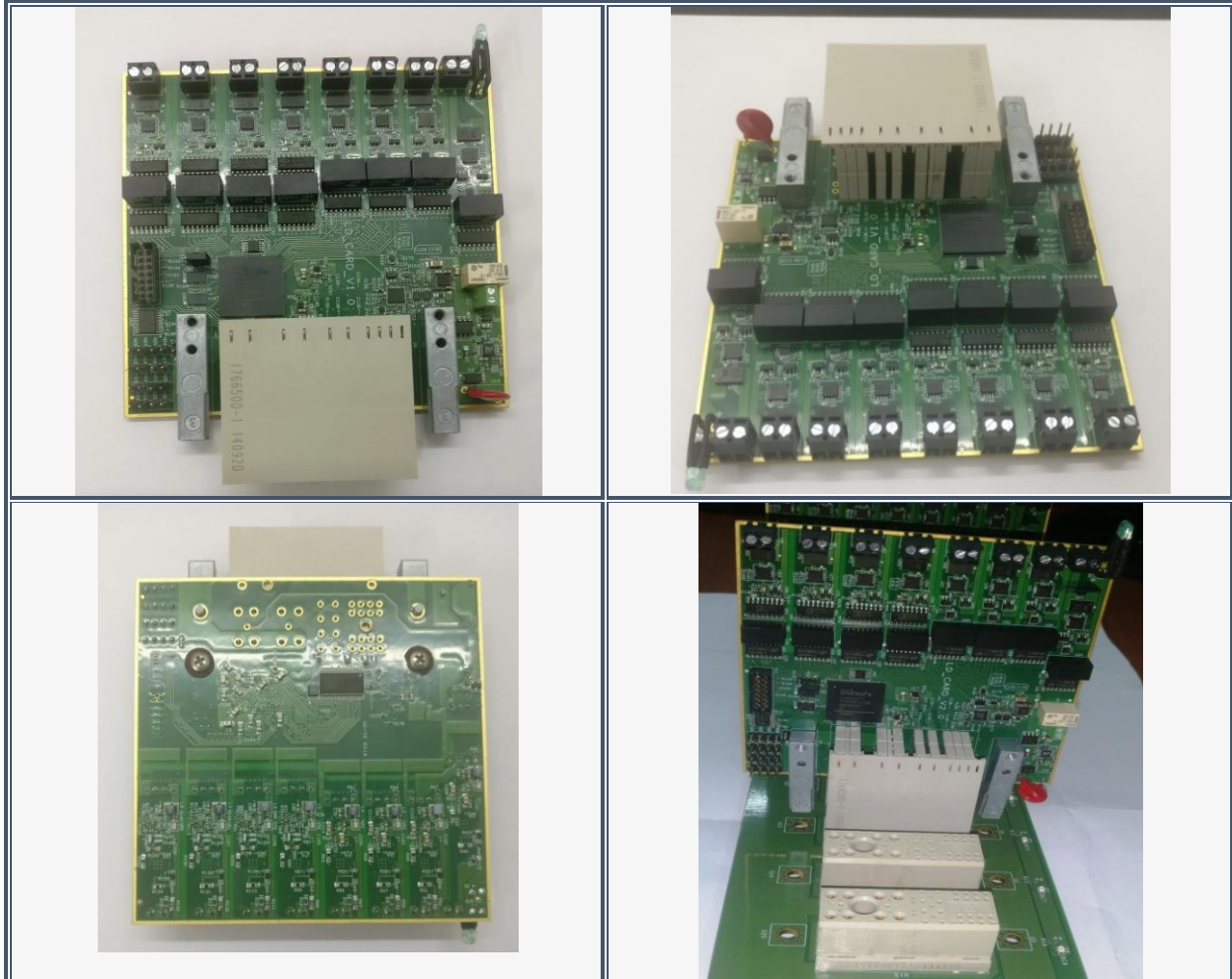




**Table 1-SPI BASED LEAK DETECTION CARD**



**SPARTAN 6 FPGA based simple SPI Interface based Industrial grade 8 Channel Leak Detection IO Cards communicating to the CPU Cards via the Back Plane Card for Nuclear process instrumentation.**

- **Channel to Channel isolation for all the 8 channels**
- **All the analog input channels are isolated from the FPGA using 5KV digital isolators.**
- **Half of the analog inputs processed using 12 bit ADC – AD7091**
- **Half of the remaining analog inputs processed using precision comparators – ADCMP396 and multiplexers - ADG1604BCPZ**
- **All the analog input channels transient and over voltage protected.**
- **On board Voltage monitoring and Temperature circuitry and hardware watchdog timer for fail safe operation under board failure condition.**
- **Supervisory reset circuitry- MAX16060D**
- **FPGA healthiness monitored.**
- **Online diagnostics using voltage reference outputs**



**Level translator circuitry between FPGA and the backplane interface -  
74ALVC164245DGG\_11**

**Simple Hot-Swap Controller based Design.**

**Fan-Less design.**

**SI, PI, Thermal Analysis done.**

***THIS HAS BEEN DEVELOPED FOR IGCAR, KALPAKKAM FOR PROCESS INSTRUMENTATION  
APPLICATION***