

Spaceborn Computer MBC186/3081 Series



Description

High Reliability Embedded MBC186/3081 Computer is designed to control space vehicle onboard equipment. The computer can be furnished with both Intel 80C186 or IDT R3081 microprocessors and has MilStd-1553 interface for communication with onboard systems, two high-speed UART port for communication with other similar computers and the UART ports for testing purposes.

Peripheral modules

For integration with onboard equipment the Computer is supplied with up to 16 peripheral modules with customized interfaces. At present 10 types of the peripheral modules have been designed. These modules are provided with various analog and digital I/O ports.

Sliced construction

The computer has a sliced (modular) design and is provided with minimum weight and size for any specific configuration. The redundant system can be designed using the majority voting scheme.

The principle of sliced design is simple. Each individual slice is designed with its own structural frame, rather than inserted into a chassis backplane. When stacked one on another and closed with a top and bottom cover, these slices create a shielded housing. The construction of the computer's slice is provided with conductive cooling of the components and their high reliable operation.

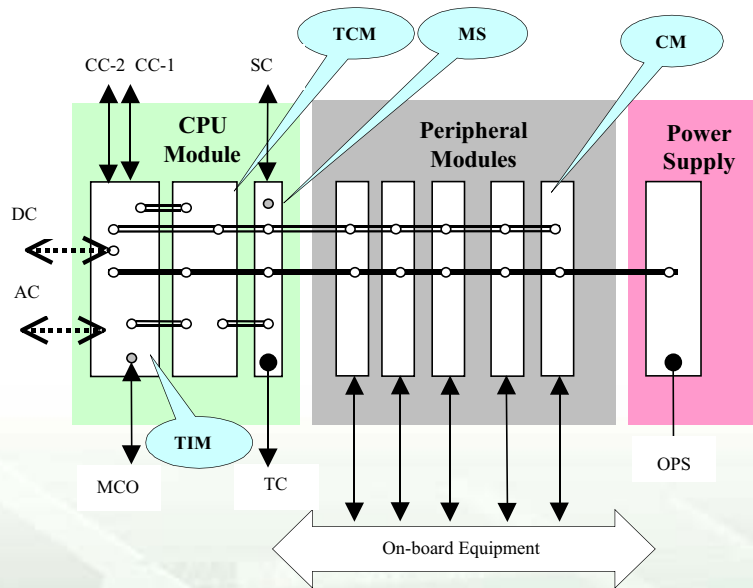
Spaceborn computer series are designed in cooperation with RC ARGON, RSC Energia and RC Rubikon-Innovacia



Technical Parameters

Linear overloads:	up to 10 G;
Shock overloads:	up to 100 G;
Operating temperature:	-60 C to +60 C;
Atmospheric pressure:	up to 10 ⁻⁹ mm of mercury;
Radiation TID (Total Integrated Dose):	up to 100 krad;
Volume:	2.5 to 7 liters;
Weight:	2 to 6.5 kg;
Power consumption:	10 to 24 W (typical);
The nominated lifetime:	15 years;
Reliability:	250 to 500 thousand hours.

MBC186/3081 Functional Diagram



CHANNELS

- CC-1 - Communication Channel 1
- CC-2 - Communication Channel 2
- SC - Synchronization Channel
- AC - Auxiliary Channel
- MCO - MIL1553 interface
- TC - Telemetry Channel
- OPS - On-board Power supply
- DC - Debugging Channel

MODULES

- TCM - Terminal Computer Module
- TIM - Terminal Interface Module
- CM - Communication Module
- MS - Synchronization Module

Applications

The flexibility of the computers enables their use in a wide range of space applications. The MBC186 is installed at the following space vehicles:

- "Zarya" module of International Space Station;
- "Service" module of International Space Station;
- "Yamal" telecommunication satellite.