

YAT-DFCC201

Digital Flight Control Computer

The YAT-DFCC201 is a high speed and reliable flight control computer for UAVs. It monitors all conditions of the UAV and makes a decision to complete the mission perfectly with the most safe condition. It contains the DSP for powerful calculation and the bus controller which manages the communication line and monitors the fault of the connected modules. Installed Flight control program is validated under the strict validation process and by just tuning the control gain, it can be applied any other conventional UAVs.

Features

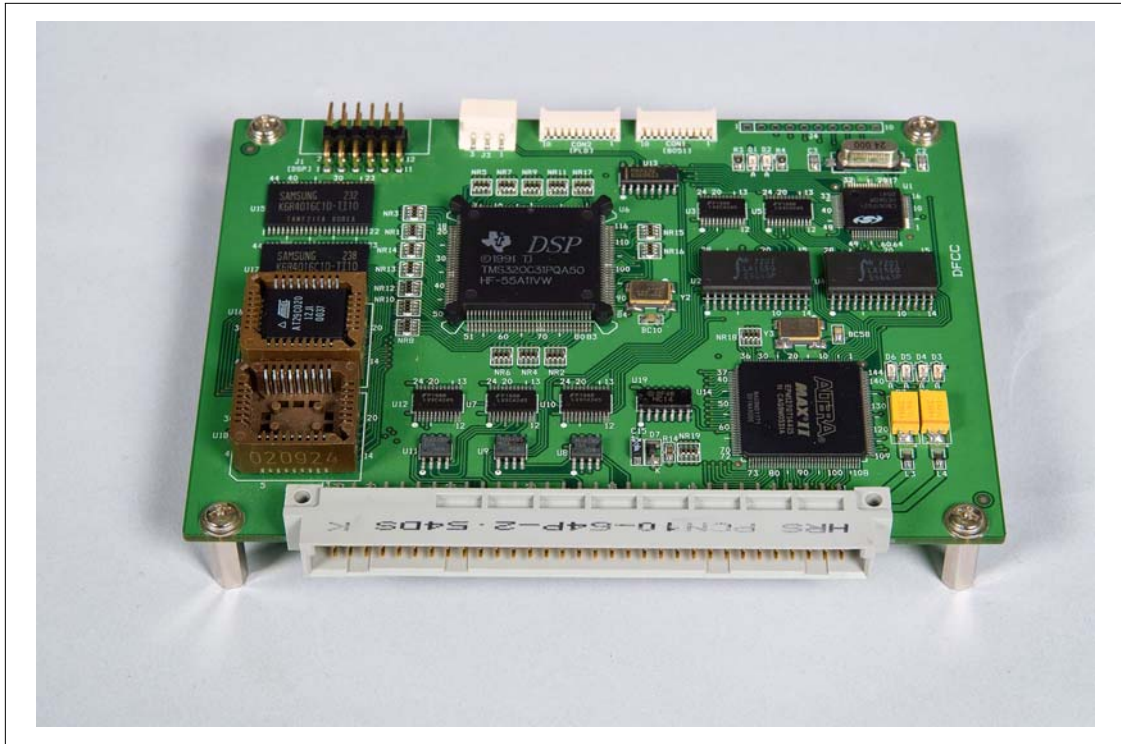
- Accurate and Reliable Digital Flight Control Computer
- Powerful floating point Calculation Performance using TI DPS TMS320C31
- Various Flight Mode for the Normal and Emergency Conditions
- Applicable to the most Conventional UAVs by Tuning the Control Gains
- 512Kbyte Flash ROM for Program (Selectable)
- High sampling rate (50Hz)
- Built-in Bus Controller using the Independent MCU
 - Effective Management of Communication line
 - Monitoring the Defect of the Flight System
 - RT Data Classification and Transmission
- Serial communication : RS-232(1Ch), RS-485(2Ch)
- PWM Output : 8Ch
- Wide Operating Environment : -20°C ~ 85°C
- System Power : +3.3Vdc, +5.0Vdc

Applications

- Autopilot Systems
- Unmanned Aircraft Systems
- Ultra-light and General Aviation Airplane

Hardware Architecture

YAT-DFCC201 consists of the DSP for high speed calculation, EPLD for DPS Control and bus controller for management of RT communication. Because it is designed for redundancy, you can construct one or more DFCCs in the flight control system.

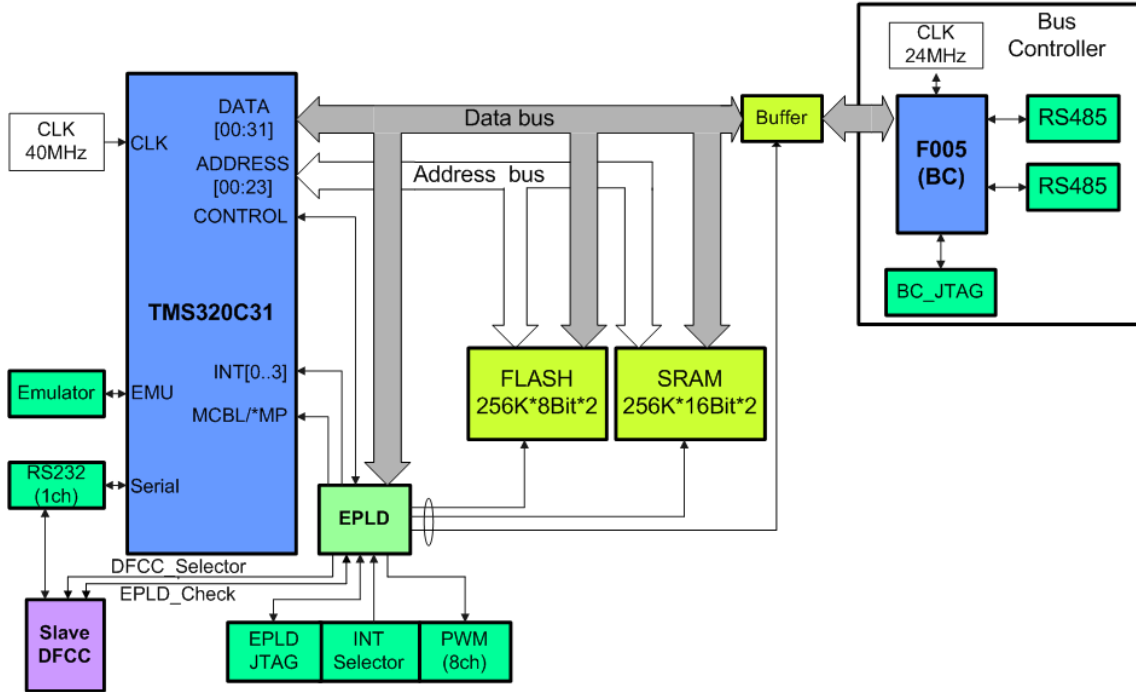


Specification

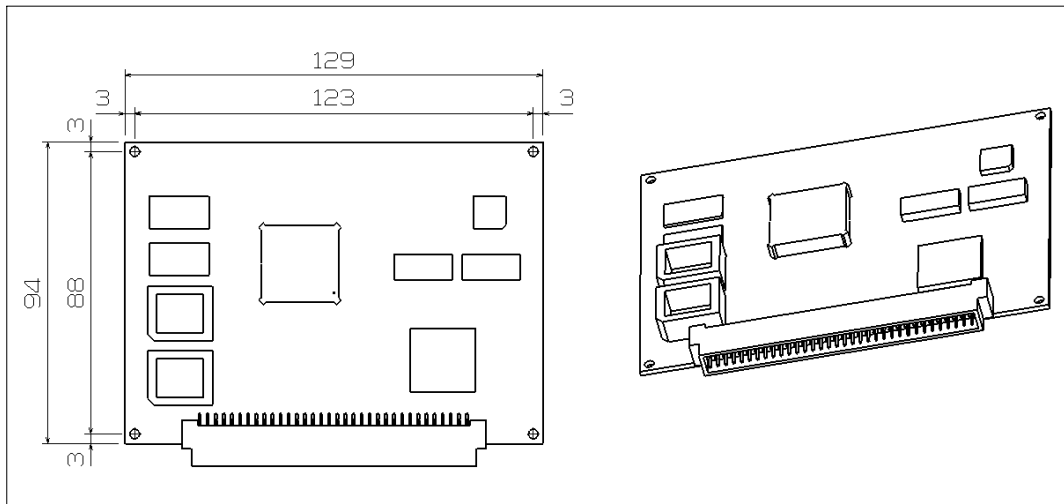
YAT - DFCC201	
Performance	
Update Rate (Hz)	50Hz
Processor	TMS320C31(40MHz), C8051(24MHz)
Flash ROM for program	512Kbyte
Operating Temperature	-20℃ ~ 85℃
Physical	
PCB Size(mm)	129 × 11 × 94 [W × H × D]
PCB Weight(g)	85
Electrical	
Supply voltage(Vdc)	3.3, 5
Consumption current(mA)	300 [@12Vdc]
Interface	RS-232(1ch), RS-485(2ch)
Signal output	PWM(8ch)
Communication Bus Specification	
Line type	RS-485
Transfer rate	10Mbps
Transfer range	1.2km
Communication mode	Dual half duplex

Block Diagram

- CPU
- INTERFACE
- INTERFACE
- Slave DFCC
- DFCC Controller



DFCC PCB



Software Architecture

Flight Control Program receives flight data from RTs, flight command from the ground control unit and PWM signals from the RC controller. So using these data, it monitors the condition of UAV in real time and performs the flight mission under the safe condition.

