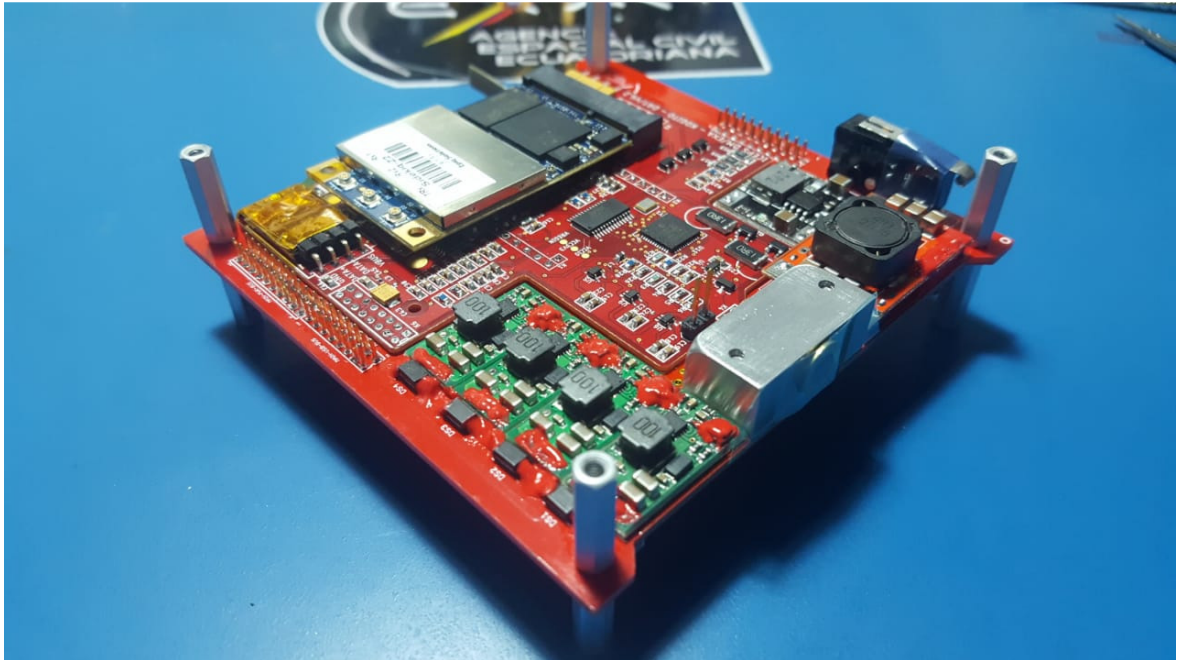




ICEPS SYSTEM CORE

V.5.0

Spec Sheet



All in one USB 2.0 bus OBC, SDR
radio, Laser comms, EPS, Solar panel
manager, Deployables manager
Cubesat system core

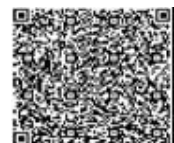


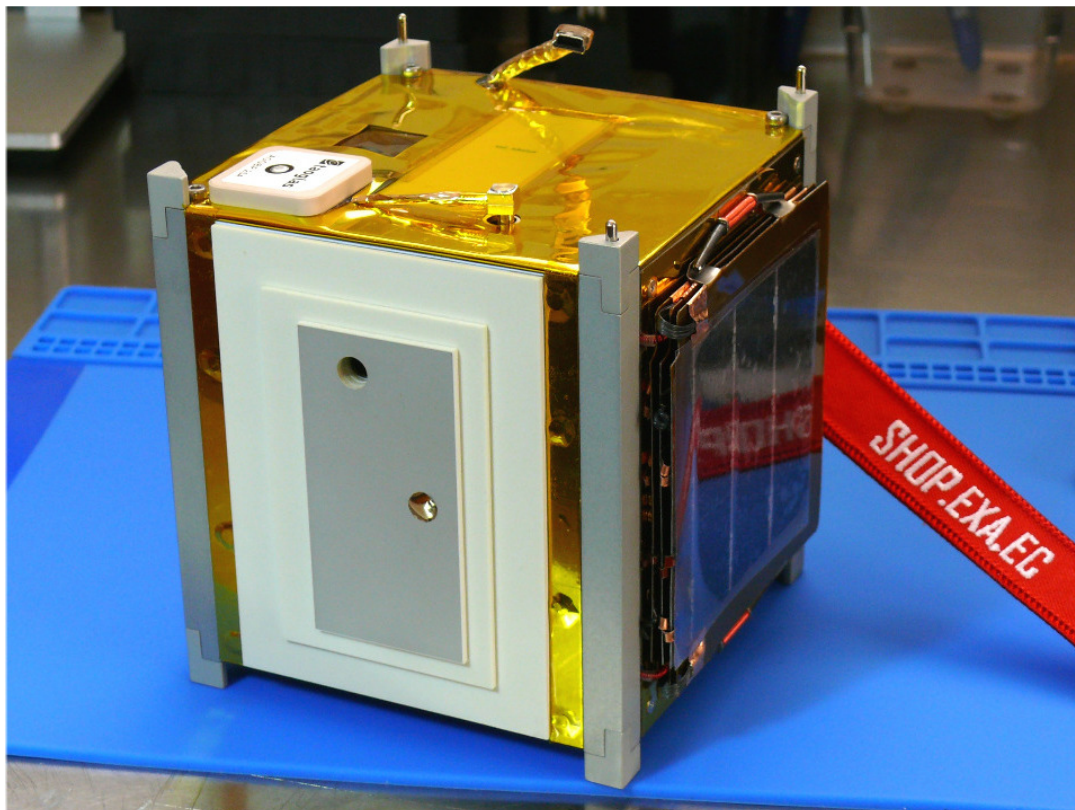
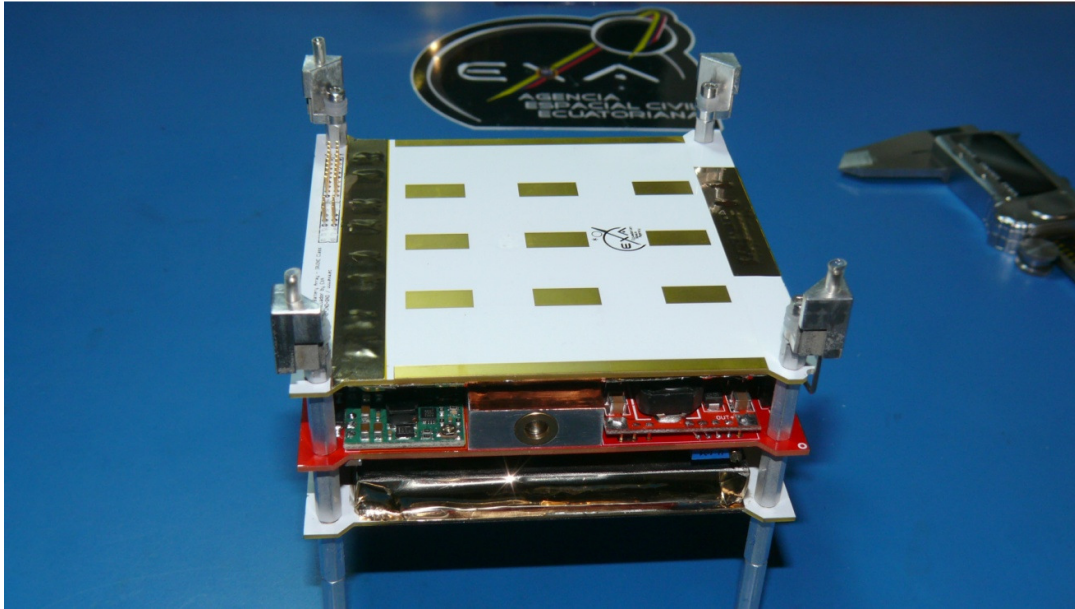


ICEPS System Core Specifications:

Bus type:	USB 2.0, I2C
OBC:	Xilinx Zynq XC7Z010-2I System-on-Chip: Programmable Logic (PL) Specification: -28K Logic Cells -2.1 Mbits BlockRAM -80 DSP slices Processor System (PS) Specification: -Dual-core ARM Cortex A9 CPU running up to 733 MHz -Linux 4.11 • 512 MB of DDR3L RAM • 32 MB of QSPI flash storage for uboot bootloader, kernel, and root file system Temperature Sensor: TMP103AYFFR Accuracy: -40 deg C to +125 deg C (+/- 1 deg C typ), Resolution: 1 deg C
OBC/OS:	Linux computer running IIOS
Radio:	SDR from 70MHz to 6GHz
EIRP	+28.5 dBm integrated LNB
Sensitivity:	-110 dBm
Antenna ports:	2 RX and 1 Transceiver (TX/RX)
System Storage	From 32 to 512 Gigabytes 60MB/s r/w (user chooses)
Number of ports:	USB2.0 60MB/s 14 total: 6 external, 8 internal; 1 I2C port
High Speed Laser communications	405nm or 450 nm solid state laser, temperature stabilized , 10 Mbps, variable beam aperture, variable focus. Integrated temperature sensor range -50C to +125C
Power rails:	5V@3A; 12V@3A(adjustable), 3v3@3.6A(2 redundant); 4.2 ~ 3.6 (unregulated) @ 12A ; 1 auxiliary APU port
Battery packs	One or two at 3.7@6A, 50W max nominal
Power delivery	50W Nominal (continuously) , 65W Maximum, 100W peak for 2.5 sec.
Solar mgmt:	4 UMPPT channels 16V@2A max each
Solar charger:	Based on TP5100 2A continuously, 1S, 2S,3S
Internal sensors:	20 internal sensors; integrated IMU
Actuators:	Integrated automatic management of Release/deploy mechanisms ; integrated automatic LNB/PA switching
Built in protection	RBL; 10A Activation switch w/ MTBF>1000, 2A and 7A resettable fuses
Inertial Measurement Unit:	6-axis MotionTracking Device: (3-axis gyroscope, 3-axis accelerometer) TDK / InvenSense ICM-20602 - Gyroscope sensitivity error: $\pm 1\%$ - Gyroscope noise: ± 4 mdps/√Hz - Accelerometer noise: 100 $\mu\text{g/g}/\sqrt{\text{Hz}}$
Mass	100 grams
Operating temp.	-50C to +125C
Dimensions	96x96x25mm

- **The system is modular, this is a full description, but the user can choose what components to be added or subtracted.**





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EXA Irvine Class Electrical Power System (ICEPS)

