

Table 2. Soviet on-board computers for spacecraft.

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Online supplement to the book [Voices of the Soviet Space Program: Cosmonauts, Soldiers, and Engineers Who Took the USSR into Space](#) (Palgrave Macmillan, 2014)

Computer / Year	Spacecraft	Characteristics
<i>Argon-11S</i> 1968	<i>Zond-4/8</i> (7K-L1)	function: automatic guidance system architecture: single-address computer with parallel processing number of units manufactured: 21 components: hybrid integrated circuits (ICs) <i>Tropa-1</i> redundancy: hardware triple redundancy RAM: 128 14-bit words ROM: 4,096 17-bit words weight: 34 kg dimensions: 305 x 305 x 550 mm power: 75W continuous operation time: 2 hrs 40 min. design: NIEM
<i>Salyut-1</i> 1968	<i>Zond-4/8</i> (7K-L1)	function: manual guidance system RAM: 64 32-bit words ROM 4,096 17-bit words dimensions: 450 x 140 x 140 mm weight: 14 kg design: NII MP
<i>Argon-12A</i> 1968	<i>Salyut 2/3/5</i> (<i>Almaz</i> orbital station)	single-address computer with parallel processing number of units manufactured: 15 components: hybrid ICs <i>Tropa-1</i> hardware double redundancy RAM: 512 24-bit words ROM: 2x4,096 24-bit words weight: 131 kg volume: 240 dm ² power: 160W (in standby mode 25W) service time: more than 2000 hours design: NIEM
<i>Argon-12S</i> 1968	<i>Almaz</i> landing module	single-address computer with parallel processing mass production: no components: hybrid ICs <i>Tropa-1</i>

		RAM: 128 17-bit words ROM: 4,096 17-bit words weight: 20 kg dimensions: 366 x 366 x 272 mm power: 36W mean time before failure: 300 hours design: NIEM
<i>Salyut-2</i> 1968	<i>Venera-5/6</i>	design: NII MP
<i>Salyut-2M</i> 1968	<i>Salyut 1/4/6/7</i> (DOS station)	RAM: 512 16-bit words ROM: 16,000 16-bit words service time: 2500 hours design: NII MP
S-530 1971	<i>Mars-2/7</i> <i>Venera-9/16</i> <i>Vega-1/2</i> N1 (1972) LOK, LK	speed: 0.1 MIPS RAM: 256 13-bit words ROM: 8,192 20-bit words components: hybrid ICs <i>Tropa</i> design: NII AP
<i>Argon-16</i> 1973	Soyuz-T Soyuz-TM Soyuz-TMA Progress Progress M <i>Salyut</i> <i>Almaz</i> <i>Mir</i>	hardware triple redundancy number of units manufactured: 380 components: ICs series 106 (<i>Priz</i>), 115, and 134 (<i>Tur</i>) RAM: 8 Kb ROM: 64 Kb speed: 0.2 MIPS weight: 83 kg volume: 145 dm ² power: 300W mean time before failure: 10,000 hours design: NITsEVT
<i>Salyut-3M</i> 1974	<i>Yantar-2K</i> spy satellite	components: ICs series 134 (<i>Tur</i>) RAM: 3,000 16-bit words ROM: 32,000 16-bit words design: NII MP
<i>Bisser-4</i> 1987	Buran	two parallel quadruple-redundant systems speed: 0.37 MIPS RAM: 128 Kb ROM: 16 Kb external memory: 2 Mb power: 270W weight: 33.6 kg

Salyut-5B *Mir*
1990

design: NII AP

hardware triple redundancy

speed: 0.49 MIPS

RAM: 32 Kb

ROM: 152 Kb

power: 75W

weight: 28 kg

designer: NII MP