



ROSCOSMOS

# Roscosmos and SpaceWire achievements in Russia

Russia's Federal Space Agency  
(Roscosmos)

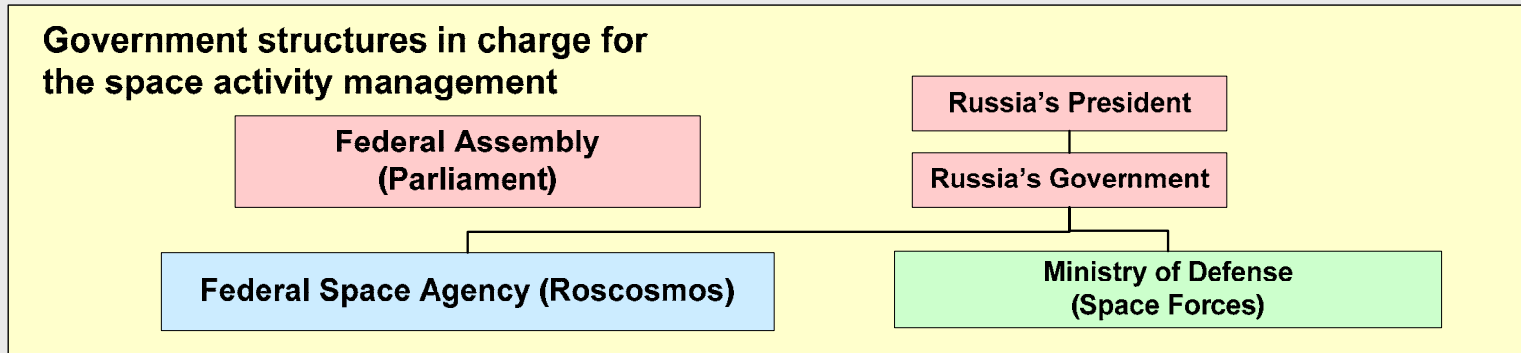


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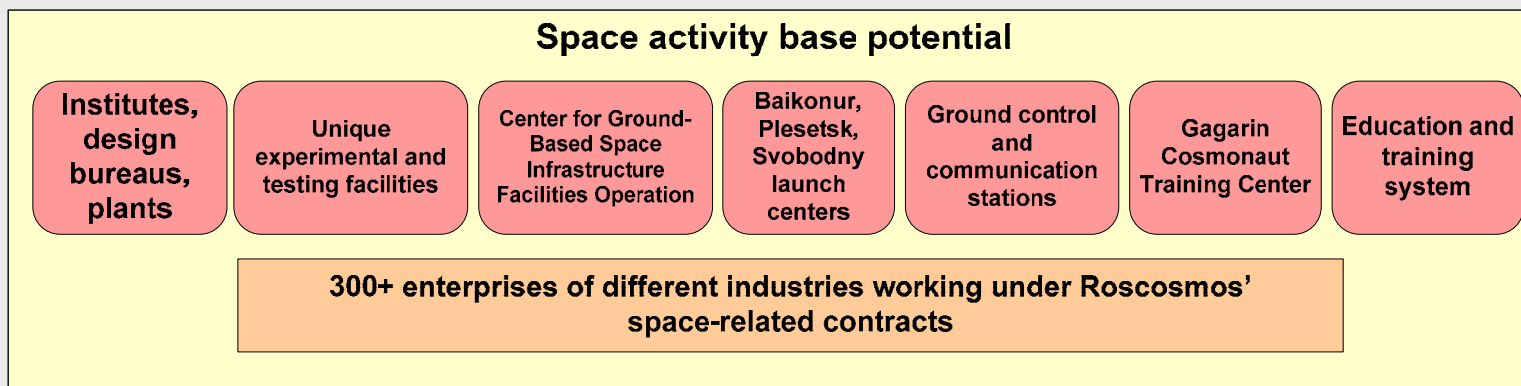
# **Roscosmos and Russia's Space Activities**



# Roscosmos as part of the space activity management in Russia



**Main goals:**  
Increasing of the country's economic and defense power, national security ensuring, science and technology development, resolving of the social issues, international cooperation development





## Roscosmos main functions

- State policy implementation and regulation in the space field;
- State services' providing and assets management in space-related fields;
- International cooperation for the joint space projects' and programs' implementation;
- General coordination of the activities at the Baikonur launch center.



# Russian space industry

112 government-owned enterprises and joint-stock companies





## Space activities planning in Russia

### The civilian space activities in Russia are conducted under the Federal Special Programs

-  Federal Space Program for 2001-2005 (FKP-2005) – **COMPLETED**
-  Federal Space Program for 2006-2015 (FKP-2015)
-  Federal Special Program 'Global Navigation System' (GLONASS) (2002-2011 гг.)



# Russia's Federal Space Program for 2006-2015

- **Program Status:** Federal Special Program approved by the Government Decree No.635 of October 22<sup>nd</sup>, 2005
- **Program State Customer:** Roscosmos
- **Program Goal** – satisfaction of the growing demand of the government, regions and the country's population for the space assets and services based on:
  - Increasing and efficiency growth of the outer space exploration;
  - International space cooperation development and fulfilling Russia's international obligations;
  - Strengthening and development of Russia's space potential.



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# **Roscosmos' International Programs**





# International Agreements

## Intergovernmental and Interagency agreements

- ISS Multilateral agreement
- Russia's bi-lateral intergovernmental agreements for space cooperation

## Contracts with firms and enterprises with Roscosmos assistance and coordination

- Rocket and space equipment supplies
- Ground infrastructure construction (launch sites, control stations, satellite information receiving stations, etc.)
- Launch services contracts – with service providers like Starsem, ILS, Kosmotras and Launch Services.



# Russia's major international space programs

## ISS (Russia, USA, Canada, Japan, ESA)

- International Space Station construction, development and use

## Soyuz in Guiana (Russia, France)

- Ground infrastructure construction and Soyuz LV operations from ESA launch center in Guiana

## RD-180 (Russia, USA)

- Construction and supply of the rocket engines

## Pre-X (Russia, France)

- Development and launches of the reusable spacecraft model using the Russian launch vehicles

## Spektr / Integral (Russia, ESA)

- Joint creation and operations of the orbital observatories

## KOSPAS-SARSAT (Russia, USA, Canada, France)

- International satellite search and rescue system

## Volga (Russia, ESA)

- Joint development of oxygen-methane rocket engine



# SpW in Russia

## “MCFlight™” - Russia radiation tolerant chipset and IP-cores Library with Space Wire Links



**MC-24R,  
Dual Cores  
(RISC+DSP)  
DSP-  
controller,  
600 MFLOP/s**



**MCB-01,  
4 -channel  
Space Wire/  
PCI adapter**



**MCK-01,  
16-channel  
Space Wire  
Router**



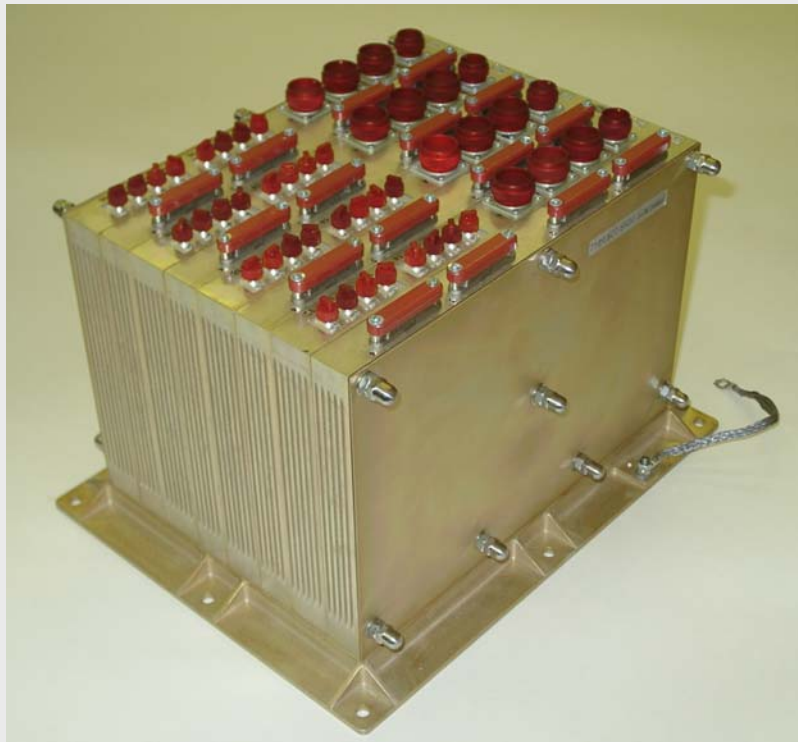
**MCT-01,  
Remote  
controller  
120 MHz,  
64-bit FPU**



**RAM -R,  
SRAM 4 Mb  
(512W\*8b),  
15ns**



# Russian SpW newest instruments



## Space instrument «Meteor-M»

Scientific multi-range instrument  
for remote Earth observation.

Designed and produced in  
cooperation with ESA.

## Reusable space transporter «Clipper».

Will use SpW technology for  
piloted space reusable  
vehicles of new generation.