

Investments in the future

Corporate presentation

St. Petersburg
2020



Technopolis GS

Transport and logistics infrastructure:

Nearest international airport:

International Airport
«Khrabrovo», 122 km

Nearest town: Municipal District
«Gusevskoye Urban Settlement»

Nearest sea port: Kaliningrad Sea
Commercial port

Road: A229

Distance from Kaliningrad:
118 km.

Distance from nearest railroad station:
1 km.

Engineering infrastructure:

Electrical power supply: 25 MW

Water supply: 3,500 cbm/day

Natural gas supply: 180 million
cbm/year

Water discharge: 7,000 cbm/day

Specialization:

- radioelectronic manufacturing industry and microelectronics
- IT
- innovative enterprises and nanoindustry



Key Manufacturing Facilities



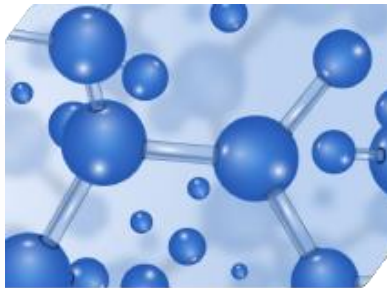
GS Nanotech
 Research and manufacturing center for microelectronic products



«Digital TV Systems» (DTVS)
 Set-top boxes and other consumer electronics manufacturing



«PRANCOR»
 Plastic, metal casings and LED luminaires manufacturing



«Nanocarbon Materials»
 Manufacturer of nanocarbonic materials



«First Folding Carton Factory» (FFCF)
 Cardboard packaging manufacturing

Leading Developer of microelectronics in Russia

GS Nanotech

One of the fastest growing private research and manufacturing centers for microelectronic products in Russia. GS Nanotech is the only Russian company to develop and mass-produce proprietary microprocessors for consumer electronics.

- development and mass production microcircuits under the SiP technology (System-in-Package)
- production of Inertial Modules based on microelectromechanical systems (MEMS)
- development and production of the first Russian enterprise-class SSD-drive
- production capacity - up to **20 million** microprocessors per year, up to **1 million** SSDs per year
- ISO 9001: 2015 certification
- clean Room Area: **700 sq.m** (class 7) expandable up to 1,500 sq.m
- awards: CNews Awards, Zhivaya Elektronika Rossii, Yantarny Mercury etc.



Solid-state drive (SSD)

Main technical characteristics SSD

- form factor: 2,5", M.2, U.2 Capacity up to 2 TB
- Interface : SATA 3.0, NVMe
- maximum sequential write speed: 3000 Mb/s
- resource (full volume rerecording cycles per day): up to 5
- memory: MLC NAND, 3D TLC NAND
- operating temperature range: standard 0 to 70°C
extended -40 to 85°C

Main advantage

- russian software
- resistance to mechanical factor and vibration
- silent work
- high-speed performance
- low power consumption
- low heat generation

Main areas of use

Autonomous monitoring and surveillance devices that require backup storage of information and ensuring its safety when operating at low temperatures.



Data processing and storage centers (Data center)

Design, development and production of data processing and storage systems

GS Nanotech develops high-speed software-defined all-flash storage systems based on its own SSD drives. SSD drives are based on memory micromodules, packaged in Russia, that ensures the absence of undocumented features and provide high security level.

The systems are perfect for tasks that require high-performance and high processing speed for data input-output operations. The systems are based on Russian software.

Main areas of use

Construction of modern high-performance Arctic data centers.



One of the Biggest Electronics Production Facility in Europe

«Digital TV Systems» (DTVS)

The factory is the largest site in Russia by total production capacity, it has a full cycle of contract electronics manufacturing:

Production capacity:

- **17 million** finished goods per year
- **2,5 million** set-top boxes per year
(2% world volume)

Quality management system ISO 9001:2015. Production areas are protected from static electricity in accordance with standards IEC 61340-5-1/2.

Quality control at all stages of production.

Contract Manufacturing Fields

- consumer electronics
- automotive electronics
- industrial electronics
- telecommunications system and Data Storage
- measurement systems and security systems.
- etc.



Surface-mount (SMT)

- 3 high-performance automatic assembly lines FUJI NXT-II (14 modules), with a total capacity of more than 800,000 components per hour
- automatic assembly lines Assembleon
- automatic assembly lines Yamaha
- up to 140 different types of components per line
- mounting of components from 01005 and odd components with accuracy of 30 μm
- automatic optical control of solder paste application and automatic optical inspection (OMRON AOI VT-S730)
- laser-engraving marking of PCBs for traceability in every stage of production



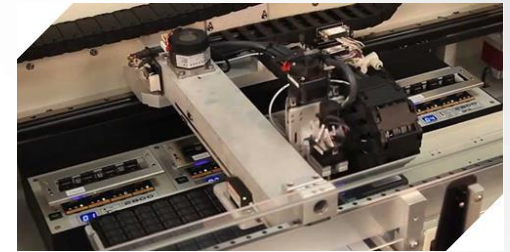
Through-hole mounting (THT)

- 4 wave soldering lines
- wave soldering lines (lead and lead-free) in accordance with RoHS European Directive
- high-performance automatic installers of DIP components AXIAL RADIAL THD (25,000 components per hour)
- 6 THT installation lines with a total capacity of 85,000 components per hour



Testing

- automatic in-circuit testing (ICT)
- functional testing (FCT)
- automatic and manual IC flash programming (EEPROM)
- equipment for vibration and temperature testing



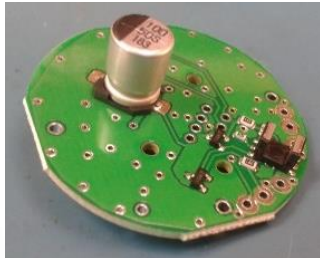
Final Assembly

- 6 assembly lines with 50 jobs
- ability to assemble a wide range of products
- control and monitoring of product release using the barcode system for components and the finished product



Contract Manufacturing Portfolio

Automotive electronics
for LADA XRAY Cross



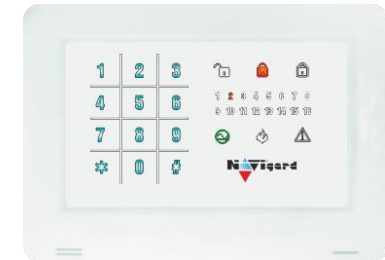
Server and client motherboards
for DEPO Computers



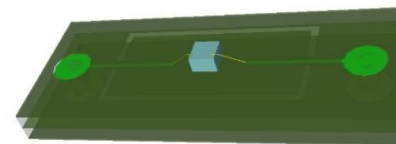
Smart utility meters
for SMARTIKO



Signaling equipment
for NAVIgard



RFID Packaging
for an industrial electronics manufacturer*



*Some contract manufacturing products couldn't be presented due to NDA

Manufacturing of Casings for Electronic Products and LED luminaires

«PRANCOR»

The factory for the production of plastic and metal parts, plastic casting and production of energy-efficient LED luminaires.

Production capacity — **500,000** products, including 300,000 cases of set-top boxes per month.

- cold forming
- coordinate stamping
- bending metal
- plastic molding,
- spot welding and auto-welding argon
- milling, turning and electroerosion processing
- plastic injection molding
- powder coating and liquid painting
- silkscreen and pad printing
- punch, tooling and tools make to customer's drawings



LED lighting systems

«PRANKOR» is the led lighting production leader in the region. Production capacity — up to 10,000 lamps per quarter.

The product line includes street, industrial and office lighting solutions. We use LED modules by top world manufacturers (CREE, OSRAM) to achieve high luminous flux (up to 40,000 Lm) and to increase the service life.



The use of dimmable power supplies (PHILIPS, MOSO, Mean Well) allows automatic and remote control over wired and wireless networks.

Samples of manufactured products



Technical parameters

Operating temperature range	-40/+60 °C
Color temperature of the light source	2700-5000
Pulsation	< 3%
LED resource, hour	100 000
Light Distribution Curve	W, D, G, K
Colour rendering index, Ra	>80
Supply voltage, V	90-305
Power factor	> 0,95
Function for maintaining the declared light level	YES
Protection against input voltage surges, lightning protection	> 5 kV
Short-circuit and overheating protection	YES
Protection class against electric shock	I
Degree of moisture/dust protection (IP)	2...6 / 0...6
Connector for extending functionality	YES (option)

A Nanostructured Carbon Materials Manufacturer

«Nanocarbon Materials»

Nano-additives and **NCM Chrome** chromium plating technology developed by GS Group are used as a highly-efficient way of a hard, wear- and corrosion-resistant decorative chromium plating without fluorides.

An innovative method of applying chrome coating provides products with increased wear resistance.

Production of supercapacitors with a double electric layer of five modifications based on a unique nanocarbon material in the form of carbon fabric.

Water-alkaline electrolyte is used, which ensures maximum safety of use.



A Modern Packaging Manufacturer

«First Folding Carton Factory» (FFCF)

The largest producer of packaging material in the Kaliningrad region.
Company specialization: production of corrugated cardboard, corrugated packaging and cast containers from molded pulp.

Capacity: **80 million/m²** of corrugated cardboard and corrugated packaging per year.

European standards for product quality and service. An own laboratory carries out quality control of corrugated cardboard and corrugated packaging at all production stages.

The factory is certified according to the food safety system certification FSSC 22000 in 2019.





Investments in Russia

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