GEN - Generic Technologies
CD1 - EEE Components, Photonics, MEMS

Programme Reference	Activity Title	Budget (k€)
GT17-600ED	Analog to digital converter for image detector readout applications	1.100
GT17-602MM	Environmental evaluation of a hybrid image sensor	500
GT17-603ED	Space evaluation of a millimeter-wave GaN MMIC process	500
GT17-604MM	Radiation testing of a COTS general purpose image sensor	750
GT17-605ED	Modelling of radiation effects in nanoscale FinFET technology and assessment of mitigation techniques for space applications	500
GT17-606ED	Exploitation of Silver sintering technology	500
GT17-608ED	High voltage and high energy wet Tantalum capacitor	300
	Total CD1	**4.150**

CD2 - Structures, Mechanisms, Materials, Thermal

Programme Reference	Activity Title	Budget (k€)
GT17-610MS	Electroless nickel immersion gold surface (ENIG) finish for electronic assemblies	500
GT17-616MS	Actuator design and commanding technologies optimisation for micro- vibration minimisation	500
GT17-617MS	Long lifetime electrical power and signal transfer technology	500
	Total CD2	**1.500**

CD3 - Avionic Systems

Programme Reference	Activity Title	Budget (k€)
GT17-618SA	Image processing and navigation module	750
GT17-620ED	OBPMark benchmarks for on-board data processing	800
GT17-622ES	Data relay RF simulator system	900
GT17-623ED	RISC-V instruction set architecture simulation model and emulation in virtual platform for hardware-software codesign	500
GT17-624ES	Low-SWaP hybrid deep-space transponder	1.200
GT17-625QQ	RTEMS SMP Extensions qualification	700
GT17-626SW	Satellite mode definition, RAMS, FDIR and autonomy engineering tool	800
GT17-627EF	GNSS antenna for lunar applications	1.000
GT17-628EF	High performance COTS processor and module for machine learning applications	3.750
	Total CD3	**10.400**

CD4 - Electric Architecture, Power and Energy, EMC

Programme Reference	Activity Title	Budget (k€)
GT17-629EP	Cost reduction of photovoltaic assembly	1.000
GT17-630EP	Lithium-Carbon fluoride electrochemistry ultra high specific energy primary cell	1.000
GT17-631EP	Delta development and qualification of solar cells for environment specific optimisation	1.000
GT17-633EP	Very low power DC/DC converter for gate drivers	700
GT17-634EP	Technologies to accurately estimate the battery state of charge	600
GT17-635EP	Digital isolator with integrated low power converter	1.200
GT17-637EP	High pressure water pump development for regenerative fuel cell systems	950
GT17-638EP	Immunity to in-band electromagnetic interference for radio-frequency receivers using signal modulation	1.000
	Total CD4	**7.450**

CD5 - Radiofrequency & Optical Systems and Products

Programme Reference	Activity Title	Budget (k€)
GT17-640EF	Digital processing unit for RF payloads and microwave instruments	900
GT17-641ED	Prototyping of a 56 Gbaud extreme short range high-speed serial interface	900
GT17-642MM	Adaptive optical lenses for compact optical corrections in small satellite payloads	800
GT17-643MM	Space compatible high power pulsed laser emitters	500
GT17-644EF	Advanced manufactured complex shaped ceramic materials for RF applications	750
GT17-645MM	Short comb LIDAR with modulation and frequency adapted for different atmospheric molecules	1.500
GT17-646EF	Advanced coating technologies for RF equipment with complex geometries	750
GT17-647EF	Advanced RF integration techniques for application in highly dense millimetre- wave active antennas	800
	Total CD5	**6.900**

CD6 - Life & Physical Science Payloads, Life Support, Robotics & Automation

Programme Reference	Activity Title	Budget (k€)
GT17-648MM	Sustainable biopolymers for space applications	600
	Total CD6	**600**

CD7 - Propulsion, Space Transportation and Re-entry Vehicles

Programme Reference	Activity Title	Budget (k€)
GT17-649SA	Active shock and vibration isolation system for launcher vehicle ride comfort	1.200
GT17-650MP	Pressure regulator for electric, chemical and cold gas propulsion systems	1.000
GT17-652MP	Miniaturised, high-pressure isolation valve for nanosatellite propulsion	400
GT17-653MP	Miniaturised pressure regulator for nanosatellite propulsion	600
GT17-654MP	Non-intrusive diagnostic system for advanced propellants	600
GT17-655SA	Autonomous and adaptive retro-propulsive precision flight and landing systems	1.200
GT17-656MP	Transient LOX/LNG combustion in launcher applications	900
GT17-657SA	Closed-loop control of throttleable engines	1.000
Innovative propulsion		
GT17-658MP	Secondary heat exchanger for combustion chamber cooling of rocket engines	500
GT17-659MP	Cryogenic engines for in-space applications	1.500
GT17-660MP	Cryogenic boost pump	1.500
GT17-661MP	Advanced manufacturing including additive manufacturing of a full propulsion system in small scale	1.000
Total CD7		**11.400**

CD8 - Ground Systems and Mission Operations

Programme Reference	Activity Title	Budget (k€)
GT17-662GS	Multi-frequency cryo-feed for deep space applications	2.000
GT17-666GS	Scalable real time radar processing hardware platform	1.200
GT17-668GD	Simulation as a service	1.250
GT17-669GD	Resilient remote and distributed, multi-centre, multi-asset operations	1.500
GT17-670GD	Evolved operational user interfaces	1.200
Total CD8		**7.150**

CD9 - Digital Engineering

Programme Reference	Activity Title	Budget (k€)
GT17-671GD	Operational validation of extended reality use cases for space operations	1.200
GT17-672SW	Use of augmented reality and virtual reality in collaborative and cooperative space applications	1.200
GT17-673QQ	Satellite failure data log with combined design and in-orbit data	400
GT17-674QQ	Digitalization evolution of the dependability return of experience dashboard	400
GT17-675GS	Disruption Tolerant Networking (DTN) network management	900
GT17-676MS	Methods to compare the measured 3D configuration of an object with its digital models for consistency verification	500
GT17-678SY	Model-based user interaction environment	750
Total CD9		**5.350**

CD10 - Astrodynamics, Space Debris and Space Environment

Programme Reference	Activity Title	Budget (k€)
GT17-679EP	Network of platform magnetometers and data pipeline for space environment monitoring	300
GT17-681SD	Interface between space traffic and air traffic management units	400
GT17-682SD	Manoeuvre pattern inference for safe operations	450
Total CD10		**1.150**

High Performance Data Processor (HPDP)
(CD3 – Avionic Systems)

Programme Reference	Activity Title	Budget (k€)
GT1H-601ED	On-board computing technologies based on a new high-performance data processor supporting machine learning applications	10.000
Total HPDP		**10.000**

GEN - Generic Technologies – Artificial Intelligence

CD3 - Avionic Systems

Programme Reference	Activity Title	Budget (k€)
Guidance Navigation and Control (GNC)		
GT1I-601SA	Machine learning for attitude and orbit control systems failure detection isolation and recovery applications	650
GT1I-603SA	Advanced verification and validation techniques for neural network-based AOCS/GNC systems	600
GT1I-606SA	AI-based GNC/AOCS systems validation and verification evolution	1.000
AI on the Edge		
GT1I-607ED	On-board detection of space weather events	500
GT1I-608SW	Qualified software machine learning toolkit for space hardware	900
GT1I-610EF	Reference onboard datasets for evaluation of machine learning models	800
GT1I-612ED	AI based end-to-end satellite failure management and prognostic	1.400
GT1I-613ED	On board processing enablers for AI for operations	500
GT1I-614ED	Advanced heterogeneous inference data processing module	2.000
Total CD3		**8.350**

CD7 - Propulsion, Space Transportation and Re-entry Vehicles

Programme Reference	Activity Title	Budget (k€)
Other		
GT1I-615MP	Space propulsion test anomalies dataset for machine learning assisted fault detection and isolation	800
Total CD7		**800**

CD8 - Ground Systems and Mission Operations

Programme Reference	Activity Title	Budget (k€)
AI for mission operations automation		
GT1I-618GD	AI for automation of mission operations systems testing and validation	2.300
Total CD8		**2.300**

CD9 - Digital Engineering

Programme Reference	Activity Title	Budget (k€)
Other		
GT1I-620GD	Artificial intelligence based source code scanning open-source tool	450
GT1I-621SY	AI digital assistant to power MBSE development	500
	Total CD9	**950**

GEN - Generic Technologies - Digitalisation

CD4 - Electric Architecture, Power and Energy, EMC

Programme Reference	Activity Title	Budget (k€)
Simulation		
GT1D-602EP	Translator of hardware description language models into simulation languages	300
Total CD4		**300**

CD8 - Ground Systems and Mission Operations

Programme Reference	Activity Title	Budget (k€)
Model-based Systems Engineering (MBSE)		
GT1D-603GD	End to end digital continuity for validation and simulation	600
Total CD8		**600**

CD9 - Digital Engineering

Programme Reference	Activity Title	Budget (k€)
Model-based Systems Engineering (MBSE)		
GT1D-606SW	Model-based system engineering for interface management	500
Model-based Systems Engineering (MBSE), Data management		
GT1D-607SY	Space system ontology: industrial tool interface development	500
Model-based Systems Engineering (MBSE), Data management, Simulation		
GT1D-609SW	Natural language processing for model-based systems engineering	500
Simulation		
GT1D-610EP	Software layer for failure mode effects analysis at electronics circuit level	300
Data management		
GT1D-611SY	Engineering data hub tooling extension development	500
Digital spacecraft, Data management		
GT1D-613SY	Methodology to update operational models of a spacecraft system	800
GT1D-615SY	Digital spacecraft data management	400
Total CD9		**3.500**

GEN - Generic Technologies – Quantum Technologies

CD1 - EEE Components, Photonics, MEMS

Programme Reference	Activity Title	Budget (k€)
GT1Q-601MM	Development of the capabilities and performance metrics in non-linear and hybrid integrated photonics for quantum applications	500
Quantum sensing		
GT1Q-602MM	Ultra-efficient compact carrier envelope frequency detection unit for optical frequency combs	500
GT1Q-603MM	Ultracompact 778 nm rubidium secondary optical frequency standard	1.000
GT1Q-604MM	Heterogeneously integrated silicon nitride photonic integrated based optical frequency comb	1.000
Total		**3.000**

CD5 - Radiofrequency & Optical Systems and Products

Programme Reference	Activity Title	Budget (k€)
Quantum computation		
GT1Q-605SW	Processing EO/Science products and big data using quantum methods	500
Quantum sensing		
GT1Q-606MM	Highly efficient, rapid Rubidium BEC physics package using a combined G- MOT and magnetic chip system design	2.000
GT1Q-607MM	Development of Strontium G-MOT for dual use applications in matter wave interferometry and optical atomic frequency standards	2.000
Total		**4.500**

GEN - Generic Technologies - Cybersecurity

CD3 - Avionic Systems

Programme Reference	Activity Title	Budget (k€)
GT1Y-601ES	Intrusion detection prevention module for secure avionics bus	2.500
GT1Y-602ES	Confidential computing: implementing spacecraft operations using trusted execution environments	2.000
GT1Y-603ES	Security segregation and isolation in a satellite	2.000
GT1Y-606ES	CCSDS delay-tolerant networking BPSec module	2.000
GT1Y-607ES	IP over CCSDS including internet protocol security module	1.200
	Total CD3	**9.700**

CD5 - Radiofrequency & Optical Systems and Products

Programme Reference	Activity Title	Budget (k€)
GT1Y-609ES	Radiofrequency firewall for satellites	4.000
	Total CD5	**4000**

CD8 - Ground Systems and Mission Operations

Programme Reference	Activity Title	Budget (k€)
GT1Y-610GD	Secure communication and operations for the operational simulator	2.000
GT1Y-611GD	Security architecture for federated operations	3.000
	Total CD8	**5.000**