



Call 2009 projects

Disclaimer: The following information is based on the document GB 88-10 established at the end of the negotiation process in December 2009.

Proposal number: 120219	Acronym: CSSL
Duration of the project (months): 36	
Project start date:	01 February 2010

Project summary

The Consumerizing Solid State Lighting (CSSL) project aims to develop and demonstrate *affordable* Smart Solid State Light sources for consumers via both technology and application routes. The proposed CSSL project works vertically across the entire value chain from LED die, light source, consumer luminaires, controls and dimmer companies aiming to achieve substantial cost reduction. The CSSL project will also work with the energy companies to both gain valuable end user insights and explore new business model that would further promote and develop the consumer LED retrofit market.

In order to achieve drastic cost reduction on system level, the CSSL project will investigate the technology to grow GaN epilayers for LED purpose on large size silicon wafers, which has the potential to ultimately cut the cost of packaged LED die by half. An inline inspection tool will also be developed which when used in combination with a defect source analysis (DSA) tool will help to improve the LED yield during the semiconductor manufacturing process. In addition, the MCLED architecture, chip configuration and driver topology will be extensively studied and optimised to enable the lowest overall system cost option, namely, system-in-package. Finally, as LED light sources are digital, light sources, implementation of Digital Smart Lighting concept via integration of sensors, actuators and controls for dimmability and controllability, will utilize the full potential of the digital source and offer more functions to the consumer, which could be perceived as additional features when compared with the traditional light sources.

Multiple LED retrofit lamp, luminaries and system level demonstrators will be delivered during the project execution to show the research and development achievements. User perception tests and field tests of comparable LED retrofit products and demonstrators will also be carried out yearly in order to verify and optimise the overall LED retrofit system architecture.

The proposed CSSL project will have profound impact on many European industries such as microelectronics, dimmer and control, equipments and tools and material industry etc, and provide new business growth opportunities and promoting cross industry cooperation. The CSSL consortium will enable the consortium partners to secure a leading position in the emerging domain of consumer LED retrofit. The project will strengthen Europe's position in the technology competition of spurring lighting manufacturers to develop high quality, high-efficiency LED products to replace the ordinary light bulb. The results will have a direct impact on energy saving, sustainability and improve the quality of life in Europe and worldwide.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
Philips Lighting B.V.	The Netherlands	4.799.220 €	801.470 €	878.257 €
STMicroelectronics S.r.l.	Italy	3.387.000 €	565.629 €	943.871 €
QinetiQ Ltd	United Kingdom	1.392.000 €	232.464 €	449.474 €
Philips Innovative Applications NV	Belgium	989.543 €	165.254 €	282.115 €
Boschman Technologies B.V.	The Netherlands	690.272 €	115.275 €	195.347 €
TNO	The Netherlands	1.106.373 €	184.764 €	368.422 €
STMicroelectronics Design and Application s.r.o.	Czech Republic	797.478 €	133.179 €	225.686 €
University of Catania	Italy	686.400 €	114.629 €	194.251 €
NXP Semiconductors France SAS	France	3.538.181 €	590.876 €	293.669 €
ICOS Vision Systems	Belgium	1.769.536 €	295.513 €	480.765 €
Acondicionamiento Terrassense	Spain	450.926 €	75.305 €	195.251 €
The Chancellor, Masters and Scholars of the University of Cambridge	United Kingdom	444.248 €	74.189 €	370.059 €
Centro Nacional de Microelectrónica	Spain	323.202 €	53.975 €	269.227 €
AISMALIBAR	Spain	497.742 €	83.123 €	215.522 €
Czech Technical University in Prague	Czech Republic	463.800 €	77.455 €	386.346 €
ARCHIMEDE ELETTRONICA SRL	Italy	724.500 €	120.992 €	175.446 €
Wittenburg BV	The Netherlands	232.100 €	38.761 €	65.684 €
s.a. Niko n.v.	Belgium	1.204.595 €	201.167 €	350.519 €
Commissariat à l'Energie Atomique	France	1.805.225 €	301.473 €	420.617 €
Materials Innovation Institute	The Netherlands	490.700 €	81.947 €	163.403 €
LEGRAND	France	559.509 €	93.438 €	46.443 €
Massive nv.	Belgium	240.000 €	40.080 €	19.920 €
British Gas Trading Ltd	United Kingdom	87.485 €	14.610 €	29.133 €
EDF R&D	France	286.770 €	47.891 €	23.802 €
BEST électronique	France	125.298 €	20.925 €	16.665 €
Total		27.092.103 €	4.524.384 €	7.059.894 €

Proposal number: 120220	Acronym: MERCURE
Duration of the project (months): 36	
Project start date:	01 February 2010

Project summary

Future ambient intelligence systems will have to achieve autonomous and self-reconfigurable operations, for real-time and efficient self-optimization of their performance.

Two technologies are now emerging to face these challenges:

- Wide Band Gap (WBG) semiconductors such as GaN and AlN are expected to play a fundamental role in the development of future smart systems and
- RF MEMS switches and RF NEMS switches appear as complementary technologies in order to achieve the re-configurability required for future smart systems.

The route towards re-configurability of high power systems requires the merging of these technologies and functions, but they are not co-integrated up to now.

This is the main concept of MERCURE i.e. to bring together advanced microwave functions using WBG MMICs and sensors along with RF MEMS and RF NEMS active interconnections.

The main objectives of MERCURE are:

- Objective 1: Achieve the integration of WBG devices and RF MEMS switches,
- Objective 2: Achieve the integration of WBG devices and RF NEMS switches based on carbon nanotubes,
- Objective 3: Realize and optimize WBG based sensors and develop the necessary technology for their monolithic integration with WBG MMICs and RF MEMS and
- Objective 4: Display the integration of all of these technologies through 4 demonstrators.

The MERCURE consortium is confident that the realization of its ambitious objectives will assist Europe to achieve technological leadership in domains that are targeted by ENIAC.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
THALES	France	1.355.554 €	226.377 €	112.510 €
TopGaN Ltd	Poland	138.000 €	23.046 €	80.454 €
FOUNDATION FOR RESEARCH AND TECHNOLOGY HELLAS	Greece	350.000 €	58.450 €	291.550 €
AGH University of Science and Technology	Poland	273.000 €	45.591 €	163.800 €
National Institute for Research and Development in Microtechnologies	Romania	264.000 €	44.088 €	0 €
University of Warsaw	Poland	273.000 €	45.591 €	163.800 €
SHT Smart High Tech AB	Sweden	325.956 €	54.435 €	108.543 €
VIA electronic GmbH ¹	Germany	100.000 €	16.700 €	0 €
Thales Systemes Aeroportes	France	218.181 €	36.436 €	18.109 €
Total		3.297.691 €	550.714 €	938.766 €

¹ Not eligible, except as sub-contractor

Proposal number: 120209	Acronym: CSI
Duration of the project (months): 36	
Project start date:	01 March 2010

Project summary

The CSI project aims to push forward the state of the art of medical 3D imaging platforms by focusing on diagnosis and therapy of serious diseases of the central nervous system and brain, such as Epilepsy and Parkinson.

The functional information provided here (PET, fMRI, EEG) is obtained by mean of a major improvement of sensors, equipments and computing platforms able to sustain the required high performance image processing for clinical diagnostics. The project is committed to develop an innovative yet simple and low-cost 3D image smart system, suitable for future use in ambulatory or home settings. Main goal is to boost the early diagnostics and prevention capability while reducing the total equipment's cost.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
STMicroelectronics S.r.l.	Italy	3.324.000 €	555.108 €	960.140 €
Alma Mater Studiorum - Università di Bologna	Italy	1.400.000 €	233.800 €	466.200 €
Stichting IMEC Nederland	The Netherlands	1.095.488 €	182.946 €	340.177 €
Austriamicrosystems AG	Austria	1.293.933 €	216.087 €	323.383 €
Kempenhaeghe	The Netherlands	191.911 €	32.049 €	63.906 €
Politecnico di Torino	Italy	400.000 €	66.800 €	133.200 €
Institute of Nuclear Research of the Hungarian Academy of Sciences	Hungary	300.000 €	50.100 €	249.900 €
Guger Technologies OEG	Austria	644.081 €	107.562 €	289.836 €
Philips Applied Technologies	The Netherlands	1.551.224 €	259.054 €	283.874 €
Philips Medical Systems b.v.	The Netherlands	3.041.590 €	507.946 €	556.611 €
AIT Austrian Institute of Technology	Austria	358.741 €	59.910 €	211.657 €
University Of Debrecen, Medical And Health Science Centre, Institute of Nuclear Medicine	Hungary	100.000 €	16.700 €	83.300 €
University of Pannonia	Hungary	100.000 €	16.700 €	83.300 €
Mediso Medical Equipment Developing and Service Ltd.	Hungary	100.000 €	16.700 €	75.000 €
Mat-Tech BV	The Netherlands	741.025 €	123.751 €	209.710 €
Total		14.641.993 €	2.445.213 €	4.330.194 €

Proposal number: 120227	Acronym: ESiP
Duration of the project (months): 36	
Project start date:	01 April 2010

Project summary

Miniaturisation and more functionality open new markets and better life quality by mobile communication, safety and health supporting devices especially for elder people. Higher system integration in nanoelectronics applying technologies like multi-chip packaging, through-silicon via technologies or package stacking approaches are becoming of highest importance. Market studies show that System-in-Package (SiP) will have an average growth of > 10% per year over the next 5 years. For some market segments this increase will be even higher than 20%. With growing integration of more and more functionality into smaller and smaller packages more and more challenges will appear for reliability, failure analysis, and testing.

The ESiP project will study reliability, failures and investigate testing for high density silicon multi-chip integration. This includes the study of new reliability targets and methods, new methods of failure characterization for highly integrated systems, new failure modes, known good die (KGD) testing, test strategies and methodologies for System-in-Package. The project starts at the silicon level, but includes also the interaction of the chip/package system with the board, which will become more and more important in the future.

Partners of the full value chain participate in ESiP: semiconductor suppliers, system houses, test and analytical equipment suppliers and material suppliers are involved to reach the project targets. The results achieved for reliability, failure analysis and test methods will be assessed by industrial relevant test vehicles. Integrated silicon samples will be designed that are applicable for medical or communication applications.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
INFINEON TECHNOLOGIES AG	Germany	3.797.320 €	634.152 €	1.264.508 €
STMicroelectronics S.r.l.	Italy	1.206.200 €	201.435 €	326.264 €
Netherlands organisation for applied scientific research	The Netherlands	1.067.369 €	178.251 €	355.434 €
Alma Mater Studiorum - Università di Bologna	Italy	250.000 €	41.750 €	83.250 €
point35 microstructures limited	United Kingdom	400.000 €	66.800 €	133.200 €
NXP Semiconductors BV	The Netherlands	510.050 €	85.178 €	93.339 €
Interuniversitair Micro-Electronica Centrum vzw	Belgium	1.173.624 €	195.995 €	0 €
Commissariat à l'Energie Atomique (LETI)	France	1.243.709 €	207.699 €	289.784 €
Melexis N.V.	Belgium	780.000 €	130.260 €	156.146 €
technoprobe	Italy	900.000 €	150.300 €	262.200 €
STMicroelectronics (Rousset) SAS	France	745.522 €	124.502 €	61.878 €
STMicroelectronics (Tours) SAS	France	1.140.284 €	190.427 €	94.644 €
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e. V.	Germany	1.174.734 €	196.181 €	978.554 €
Feinmetall GmbH	Germany	549.999 €	91.850 €	155.650 €
Valtion teknillinen tutkimuskeskus	Finland	2.459.139 €	410.676 €	1.400.000 €
Picosun Oy	Finland	579.200 €	96.726 €	276.000 €
Suss MicroTec Testsystems GmbH	Germany-S	1.185.807 €	0 €	711.484 €
SensoNor Technologies AS	Norway	530.000 €	88.510 €	177.000 €
Okmetic Oyj	Finland	824.000 €	137.608 €	163.000 €
STIFTELSEN SINTEF	Norway	880.000 €	146.960 €	440.000 €
Austriamicrosystems AG	Austria	1.917.087 €	320.154 €	479.271 €
VTI Technologies Oy	Finland	1.737.600 €	290.179 €	366.000 €
Tronico SAS	France	140.141 €	23.404 €	11.631 €
AIT Austrian Institute of Technology GmbH	Austria	402.886 €	67.282 €	237.702 €
SISTEMI PER L'ELETTRONICA E LA'UTOMAZIONE SPA	Italy	852.000 €	142.284 €	230.216 €
PVA TePla Analytical Systems GmbH	Germany	501.113 €	83.686 €	141.815 €
3D PLUS	France	500.702 €	83.617 €	66.593 €
University College London	United Kingdom	445.698 €	74.432 €	248.699 €
Quantemol Ltd	United	245.000 €	40.915 €	96.898 €

	Kingdom			
Siemens AG	Germany	1.194.754 €	199.524 €	354.595 €
EV Group E. Thallner GmbH	Austria	236.412 €	39.481 €	59.103 €
Team Nanotec GmbH	Germany	549.129 €	91.705 €	155.404 €
Deflt univestiy of Technology	The Netherlands	789.882 €	131.910 €	263.031 €
Boschman Technologies B.V.	The Netherlands	1.510.243 €	252.211 €	427.399 €
Philips	The Netherlands	1.027.310 €	171.561 €	187.998 €
Conpart	Norway	530.000 €	88.510 €	177.000 €
InfraTec GmbH Infrarotsensorik und Messtechnik	Germany-S	500.349 €	0 €	300.209 €
Zentrum für Elektronenmikroskopie Graz	Austria	447.488 €	74.730 €	264.017 €
European Aeronautic Defence and Space Company EADS France	France	279.571 €	46.688 €	23.204 €
Advanced Laser Separation International NV	The Netherlands	1.010.000 €	168.670 €	285.830 €
Commissariat à l'Energie Atomique (LITEN)	France	300.097 €	50.116 €	69.923 €
Total		36.514.419 €	5.816.319 €	11.868.873 €

Proposal number: 120222	Acronym: EEMI 450
Duration of the project (months): 36	
Project start date:	01 April 2010

Project summary

The three major global semiconductor companies Intel, Samsung and TSMC, working together at ISMI in the USA, have indicated now the time has come to introduce the next wafer size of 450mm to enable future production requirements in an economical fashion.

At this very moment 450mm standards are being established within the SEMI organization and 450mm developments are integrated in the ITRS roadmap, which defines first 450mm pilot-lines around 2012.

European semiconductor Equipment & Materials (E&M) companies have decided that to secure their global activities, which are the major part of their business; they should take an active part in these developments. Therefore a European E&M 450mm initiative has been established: EEMI450, which decided to start this project.

The EEMI 450 project is the first time that all major European E&M companies, together with the dominating institutes in this field and partners in the supply chain are cooperating in a really broad joint effort.

Completely new approaches will be addressed. Wafer-handling platforms will be considered separately and the outcome of research will be transferred into optimal concepts and configurations. R&D concerning material aspects of 450mm wafers will play a major role and wafers out of this effort will be made available to the other partners. From the equipment side, the project will address initial efforts to come to different process modules for oxidation, deposition, lithography and etch. Wafer-bonding equipment will be developed for SOI. Metrology will be focused on the specific topics as mentioned above.

The major institutes play an important role by their expertise in supporting equipment development and offering metrology options. Intensive contact with the driving semiconductor companies is key part of the project; one of them, Intel Ireland, is a consortium member. An Advisory Board seated with accepted experts in the field will supervise and guide the European applicability of the solutions.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
ASM International NV	The Netherlands	1.229.990 €	205.408 €	225.088 €
Vistec Electron Beam GmbH	Germany	150.458 €	25.126 €	35.057 €
Fraunhofer-Gesellschaft	Germany	894.655 €	149.407 €	745.248 €
HAP GmbH Dresden	Germany-S	250.000 €	0 €	125.000 €
ALCATEL VACCUM TECHNOLOGY FRANCE SAS	France	169.445 €	28.297 €	14.064 €
Commissariat à l'Energie Atomique	France	352.965 €	58.945 €	82.241 €
Interuniversitair Micro-Electronica Centrum vzw	Belgium	338.114 €	56.465 €	0 €
Oxford Instruments Plasma Technology Ltd	United Kingdom	586.167 €	97.890 €	195.194 €
Siltronic AG	Germany	4.523.721 €	755.461 €	1.054.027 €
ASML Netherlands BV	The Netherlands	875.000 €	146.125 €	160.125 €
RECIF Technologies	France	594.506 €	99.283 €	49.344 €
EV Group E. Thallner GmbH	Austria	817.000 €	136.439 €	204.250 €
Bronkhorst High-Tech B.V.	The Netherlands	240.400 €	40.147 €	53.967 €
DAS Environmental Expert GmbH ²	Germany-S	20.000 €	0 €	0 €
PVA TePla AG	Germany	600.000 €	100.200 €	139.800 €
SEMILAB Semiconductor Physics Laboratory, Co. Ltd.	Hungary	900.000 €	150.300 €	437.200 €
Intel Ireland - IPLS	Ireland	161.736 €	27.010 €	48.521 €
Xycarb Ceramics BV	The Netherlands	300.000 €	50.100 €	54.900 €
AIXTRON AG	Germany	1.493.250 €	249.373 €	347.927 €
TNO	The Netherlands	450.089 €	75.165 €	149.880 €
SemiQuarz	Germany	286.211 €	47.797 €	95.308 €
ION BEAM SERVICES	France	649.960 €	108.543 €	86.445 €
Mattson Thermal Products GmbH	Germany	466.000 €	77.822 €	108.578 €
AIS Automation Dresden GmbH	Germany-S	109.127 €	0 €	78.243 €
S.O.I.TEC Silicon On Insulator Technologies	France	1.033.671 €	172.623 €	85.795 €
Physikalische-Technische Bundesanstalt	Germany	126.000 €	21.042 €	104.958 €
Nanophotonics AG	Germany	706.185 €	117.933 €	164.541 €
Total		18.324.650 €	2.996.901 €	4.845.701 €

² Not eligible, except as sub-contractor

Proposal number: 120228 **Acronym:** MAS
Duration of the project (months): 36
Project start date: 01 April 2010

Project summary

The objective of MAS is to develop a common communication platform and nanoelectronics circuits for health and wellness applications to support the development of flexible, robust, safe and inexpensive mobile AAL systems, to improve the quality of human life and improve the well-being of people.

In this context, reference architectures will be defined in order to enable system development from devices to complete mobile AAL systems, and to enable cooperative clusters of such systems for specific environments and applications.

MAS focuses on the development of an integrated approach for the areas of health monitoring and therapy support at home, and mobile health, wellness and fitness. The systems are intended for remote patient supervision using multi parameter biosensors and secure communication networks, and health&wellness monitoring in the home environment. The mixed healthcare and consumer markets will be targeted with MAS-platform-based devices with five application demos:

- 1: Health and Activity Monitor
- 2: Point of Care Terminal and Gateway
- 3: Cardiovascular Monitor
- 4: Diabetes Monitor
- 5: Mobile Cardiotocography

The key developments will address mobile, unobtrusive sensor systems with standardized interfaces linked by secure wireless communication to a managing controller. User friendly interfaces, multiple heterogeneous sensors networks, low power and power management form key elements of the platform. Seamless connectivity, interoperability and cooperation across mobile AAL systems, health service providers and patient will be field-tested in different environments.

The expected results of the MAS project include size reduction of BAN-sensor nodes by >80%, cost reduction by >40% in the next 6 years, and reduced power consumption for communication by 50-70%. Social benefits for the reduction of hospital stay duration and costs, as well as the institution of preventive healthcare devices, are relevant. The markets in healthcare fields range up to 6B€.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
Infineon Technologies AG	Germany	5.801.104 €	968.784 €	1.641.712 €
point35 microstructures limited ³	United Kingdom	571.000 €	95.357 €	104.286 €
Acondicionamiento Terrassense	Spain	505.188 €	84.366 €	218.746 €
Technische Universität Graz (Graz University of Technology)	Austria	373.682 €	62.405 €	220.472 €
STIFTELSEN SINTEF	Norway	518.000 €	86.506 €	259.000 €
Corscience GmbH & Co. KG	Germany	787.137 €	131.452 €	222.768 €
CONSEJO SUPERIOR DE INVESTIGACIONES CINTIFICAS	Spain	418.255 €	69.849 €	348.406 €
DICE GmbH & Co KG	Austria	997.636 €	166.605 €	249.409 €
X-FAB Semiconductor Foundries AG	Germany	629.762 €	105.170 €	146.735 €
Evalan BV	The Netherlands	998.300 €	166.716 €	282.519 €
Fraunhofer Institute Applied Information Technology	Germany	1.197.114 €	199.918 €	997.196 €
UNI Erlangen / Lehrstuhl Technische Elektronik	Germany	531.693 €	88.793 €	442.900 €
Oberthur Technologies	France	797.416 €	133.168 €	66.186 €
Lifecare	Norway	230.000 €	38.410 €	76.590 €
GE Vingmed Ultrasound	Norway	270.000 €	45.090 €	89.910 €
Infineon Technologies Austria AG	Austria	1.520.208 €	253.875 €	380.052 €
Siemens Aktiengesellschaft Oesterreich	Austria	781.519 €	130.514 €	195.379 €
Fundación CIDETEC	Spain	701.342 €	117.124 €	303.681 €
Institute of Theoretical Electrical Engineering, Leibniz Universitaet Hannover	Germany	331.907 €	55.428 €	276.479 €
Philips Electronics Nederland B.V.	The Netherlands	4.554.324 €	760.572 €	833.441 €
Philips Consumer Lifestyle B.V.	The Netherlands	555.506 €	92.770 €	101.658 €
T-Systems Enterprise Services GmbH	Germany	1.152.157 €	192.410 €	326.060 €
Medizinische Universitaet Graz	Austria	318.530 €	53.195 €	187.932 €
EQUALID SOLUTIONS S.L.	Spain	156.035 €	26.058 €	83.167 €
Slovak University of Technology in Bratislava	Slovak Republic	324.000 €	54.108 €	269.892 €
TU Wien	Austria	299.893 €	50.082 €	176.936 €
Charité-Universitätsmedizin Berlin	Germany	440.186 €	73.511 €	366.675 €
Ceske vysoke uceni	Czech Republic	428.891 €	71.625 €	357.266 €

³ Subject to further eligibility check

technicke v Praze				
INSTITUT MIKROELEKTRONICKYCH APLIKACI S.R.O.	Czech Republic	522.000 €	87.174 €	173.826 €
Brno University of Technology	Czech Republic	673.400 €	112.458 €	560.942 €
Total		27.386.185 €	4.573.493 €	9.960.221 €

Proposal number: 120215 **Acronym:** CAJAL4EU
Duration of the project (months): 36
Project start date: 01 March 2010

Project summary

The objective of the CAJAL4EU project is to develop nanoelectronics-based biosensor technology platforms enabling in-vitro diagnostic test manufacturers to rapidly build a variety of new multi-parameter test applications in a robust, user-friendly and cost-effective way.

Compared to other biosensor technologies, the nanoelectronics-based biosensors, which will be developed in this project, have as key differentiator that they can be integrated with other low-cost electronics (preferably on CMOS). In addition, the cost of a nanoelectronics biosensor can be ultra-low at high volumes. Furthermore, label-free and multi-analyte detection is envisioned which will allow more accuracy and mass parallelism in clinical diagnostic applications.

The biosensors will consist of a nanoelectronics-based transducer with an interface chemistry which makes the connection to the clinical sample to be analyzed. Subsequently, capturing of bio-targets can be detected by measuring capacitive/impedance changes in the electrical signal. With on-chip detection electronics, small electrical changes can be detected within milliseconds, enabling massively parallel real-time monitoring of bio-molecule binding events. Besides the transducers, interface chemistry and spotting technologies, microfluidics, software and hardware developments (and their integration) will play a crucial role to realize fully integrated biosensor systems and lab-on-chip devices.

Therefore, the main deliverables of this project are the different developed technologies; sensor technology including bio-chemical functionalization, microfluidics and related hardware and software drivers. The integrated technology blocks into a generic system solution will be tested in demonstrators to proof integration, cost efficiency and biological application relevance. This will be done in close collaboration with end-users and medical companies to realize a valuable impact on the European society and economy.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
NXP Semiconductors Belgium NV	Belgium	3.033.850 €	506.653 €	306.653 €
Toppan Photomasks France SAS	France	1.554.012 €	259.520 €	128.983 €
Boschman Technologies BV	The Netherlands	936.395 €	156.378 €	125.356 €
Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung	Germany	810.495 €	135.353 €	675.142 €
Interuniversitair Micro-Electronica Centrum vzw	Belgium	948.741 €	158.440 €	410.805 €
Micronit microfluidics B.V.	The Netherlands	522.117 €	87.194 €	69.896 €
Diatron MI Plc	Hungary	480.000 €	80.160 €	243.840 €
Institut für Mikrotechnik Mainz GmbH	Germany	1.765.853 €	294.897 €	499.736 €
Semmelweis University	Hungary	410.400 €	68.537 €	341.863 €
Centro Nacional de Microelectronica	Spain	398.690 €	66.581 €	332.109 €
Radboud University Nijmegen Medical Centre	The Netherlands	1.529.438 €	255.416 €	204.747 €
ATOS ORIGIN SOCIEDAD ANÓNIMA ESPAÑOLA	Spain	624.396 €	104.274 €	207.924 €
Budapest University of Technology and Economics	Hungary	648.000 €	108.216 €	539.784 €
Dublin City University ⁴	Ireland	410.000 €	68.470 €	341.530 €
Silex Microsystems AB	Sweden	500.000 €	83.500 €	216.500 €
Galway Tool and Mould Ltd ⁵	Ireland	100.000 €	16.700 €	50.000 €
Stokes Bio Ltd ⁶	Ireland	200.000 €	33.400 €	100.000 €
Audit Diagnostics ⁷	Ireland	200.000 €	33.400 €	100.000 €
microfluidic ChipShop GmbH	Germany	703.000 €	0 €	492.100 €
Laboratorios Alpha San ignacio Pharma	Spain	475.244 €	79.366 €	256.632 €
Universidad Complutense de Madrid	Spain	311.671 €	52.049 €	259.622 €
Commissariat a l'Energie Atomique	France	778.217 €	129.962 €	181.325 €
INSTITUTO ARAGONES DE CIENCIAS DE LA SALUD	Spain	63.405 €	10.589 €	52.816 €

⁴ Subject to further eligibility check

⁵ Subject to further eligibility check

⁶ Subject to further eligibility check

⁷ Subject to further eligibility check

ELA MEDICAL SAS	France	836.847 €	139.753 €	69.458 €
Research Institute for Technical Physics and Materials Science	Hungary	421.200 €	70.340 €	350.860 €
PAC TECH - PACKAGING TECHNOLOGIES GMBH	Germany	524.810 €	87.643 €	122.281 €
Tibotec Virco Virology BVBA	Belgium	859.047 €	143.461 €	371.967 €
Consejo Superior de Investigaciones Científicas	Spain	308.400 €	51.503 €	256.897 €
Robert Bosch GmbH	Germany	2.290.997 €	382.596 €	533.802 €
TOTAL		22.645.225 €	3.664.351 €	7.842.628 €

Proposal number: 120221	Acronym: MIRANDELA
Duration of the project (months): 36	
Project start date:	04 January 2010

Project summary

The MIRANDELA project aims to the Millimetre-wave and Radio-frequency integration in nanoelectronics CMOS platforms for modern wireless 5A Communications. Starting from core CMOS nodes, specific works will be conducted in order to offer a silicon technology and design platform adequate for the development of modern wireless communication applications. They can be “labelled” as 5A communications: Anything to be transferred from/to Anybody located Anywhere at Anytime using the most appropriate physical path from Any-path available between the sender and the recipient based on performance and/or economical considerations.

Components available in core CMOS technology nodes as well as those made available by using specific process steps will be characterized, optimized and modelled in the RF and millimetre-wave range as well as for analog operation targeting very low power design of RF blocks and functions.

The design solutions will be studied for reducing Time to Market and cost. Starting from the electrical models, efficient and cost/performance optimized design packages will be constructed. Moreover, specific flows and methods required for this kind of applications will be studied and applied for the design of RF and millimetre-wave building blocks.

A significant effort will be devoted to the architecture of RF and millimetre-wave functions. In addition to traditional analog RF design, there are several new ideas that will be eventually deployed in such a technology node: millimetre-wave design in pure CMOS, RF design at very low power consumption, digital enhanced RF design, auto calibration of RF functions, Software Defined Radio (SDR), Cognitive Radio (CR), repairable functions, BIST introduction, etc.

The capability of these technologies for making highly integrated communication mobile terminals on a single chip will be demonstrated. Demonstrators will be realized in the 45/40nm as well as the 32/28nm CMOS nodes by capitalizing on previous developments.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
STMicroelectronics SA	France	5.241.869 €	875.392 €	435.075 €
STMicroelectronics S.r.l.	Italy	2.111.200 €	352.570 €	615.930 €
Integrated Systems Development SA	Greece	715.000 €	119.405 €	238.095 €
STMicroelectronics (Crolles2) SAS	France	2.146.576 €	358.478 €	178.166 €
ST-Ericsson Belgium N.V.	Belgium	3.856.652 €	644.061 €	644.061 €
Universitat Politècnica de CAalunya	Spain	302.749 €	50.559 €	0 €
Università degli Studi di Pavia	Italy	960.000 €	160.320 €	279.680 €
ST-Ericsson (France) SAS	France	4.145.628 €	692.320 €	344.087 €
Università degli Studi di Modena e Reggio Emilia	Italy	440.000 €	73.480 €	128.188 €
DICE GmbH & Co KG	Austria	2.316.355 €	386.831 €	0 €
Teknillinen korkeakoulu	Finland	772.802 €	129.058 €	0 €
STIFTELSEN SINTEF	Norway	509.616 €	85.106 €	254.808 €
ST-Ericsson B.V.	The Netherlands	8.580.410 €	1.432.928 €	0 €
Foundation of Research and Technology Hellas	Greece	280.000 €	46.760 €	233.240 €
POLITECNICO DI MILANO - Dipartimento di Elettronica e Informazione	Italy	330.000 €	55.110 €	96.140 €
Ecole Polytechnique Fédérales de Lausanne	Switzerland	442.516 €	73.900 €	0 €
STMicroelectronics R&D Oy	Finland	2.399.750 €	400.758 €	0 €
IMS Laboratory - ENSEIRB - Bordeaux University - CNRS	France	643.283 €	107.428 €	535.855 €
Austrian Center of Competence in Mechatronics GmbH	Austria	235.289 €	39.293 €	0 €
Grenoble INP	France	353.419 €	59.021 €	294.398 €
Centre National de la Recherche Scientifique	France	509.801 €	85.137 €	424.664 €
CEA-LETI: Commissariat à l'énergie atomique	France	3.715.189 €	620.437 €	865.639 €
ST-Ericsson (Grenoble)	France	5.327.367 €	889.670 €	442.171 €
Institut Supérieur d'Electronique et du Numérique	France	243.262 €	40.625 €	202.637 €
ST-Ericsson (UK) Ltd	United Kingdom	2.250.047 €	375.758 €	0 €
Q-Free ASA	Norway	350.000 €	58.450 €	98.000 €
Total		49.178.780 €	8.212.855 €	6.310.834 €

Proposal number: 120224	Acronym: SMART
Duration of the project (months): 36	
Project start date:	01 January 2010

Project summary

The mission of the SMART project is to define and develop new hardware and firmware technologies for the secure storage and communication of large and multi-form data. The project will develop new memory blocks (based on the expected-intrinsically safer PCM technology), segregated I/Os, tamper resistant techniques and, authentication/identification mechanisms of distant objects within an ambient computing, to allow the scaling and optimisation of various applications in new generation Smart Secure Devices (SSDs).

Different forms of SSDs are considered as driving applications for SMART: new SIM cards, high capacity secure mass storage modules, smart cards and secure micro-controllers. It is expected these devices will be deployed in user PDAs, in new ambient computing applications, in governmental terminals and in related supporting infrastructures.

The project will address four main challenges of prevailing SSD devices: 1) new generation Non-Volatile Memories (NVMs) of high capacity and secure architecture, 2) related crypto engines with configurable firmware and 3) resistance to state of the art attacks.

The aim is to maintain Europe as a worldwide player in the field of efficient implementation of secure integrated devices. This ambitious goal will be reached by developing new memory generations targeted to trusted devices and smart secure portable objects. This will be actually a combined effort from major European semiconductor and foundry players, one fabless in NVM memories, specialists in the domain of counter measures against invasive and side channel attacks, specialists in the design of secure hardware, competent group in the development of secure middleware, one PKI company and leaders in the market of secure solutions.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
THALES COMMUNICATIONS S.A.	France	2.292.939 €	382.921 €	199.486 €
STMicroelectronics S.r.l.	Italy	4.075.200 €	680.558 €	1.111.742 €
Integrated Systems Development SA	Greece	760.500 €	127.003 €	253.246 €
Numonyx S.r.l.	Italy	4.408.000 €	736.136 €	1.135.750 €
CENTRE NATIONAL D'ETUDES SPATIALES	France	723.808 €	120.876 €	602.932 €
STMicroelectronics (Rousset) SAS	France	686.681 €	114.676 €	56.994 €
Gemalto SA ⁸	France	2.359.600 €	394.053 €	71.254 €
TELETEL Telecommunications & Information Technology SA	Greece	487.500 €	81.412 €	162.338 €
Thales Security Solutions & Services SAS ⁹	France	401.556 €	67.060 €	33.329 €
Aristotle University of Thessaloniki	Greece	174.000 €	29.058 €	144.942 €
Università degli Studi di Milano-Bicocca	Italy	302.400 €	50.501 €	100.800 €
MULTICERT	Portugal	533.400 €	89.078 €	177.622 €
University of Minho	Portugal	204.400 €	34.135 €	170.265 €
Fraunhofer EAS ¹⁰	Germany-S	1.165.847 €	0 €	971.151 €
Anvosys GmbH ¹¹	Germany-S	712.000 €	0 €	415.096 €
Total		19.287.831 €	2.907.467 €	5.606.947 €

⁸ Subject to the acceptance of their request to participate by the JU and the national PA

⁹ Subject to the acceptance of their request to participate by the JU and the national PA

¹⁰ Subject to further eligibility check

¹¹ Subject to further eligibility check

Proposal number: 120214	Acronym: END
Duration of the project (months): 36	
Project start date:	01 April 2010

Project summary

The END project targets the development of innovative energy-aware design solutions and EDA technologies for next generations' nanoelectronics circuits and systems, and the related energy generation, conversion and management systems. The ultimate objective of the END project is that of bringing such solutions and technologies into the product development processes of the industrial partners of the Consortium, thus enabling the design and manufacturing of the electronic circuits that will be at the basis of the green information society of the future.

The END project will pursue the energy efficiency objective through an innovative holistic approach, which combines research work in modelling, design and EDA technologies with strategic application drivers, which will serve both for requirement setting and concept demonstration. Distinguishing feature of the technology R&D approach followed within END is that it unifies under a common design platform the development of modelling, simulation, design and EDA techniques for devices and systems of different nature and purpose (digital blocks, analog/RF blocks, discrete components), as well as the conception and experimentation of new power supply systems, with particular emphasis on energy management aspects. This enables a synergic approach to energy-aware design, thus offering a comprehensive set of solutions covering the many different facets of the complex problem of accounting for energy effects during the design of heterogeneous circuits and systems, such as those that will be hosted by the electronic products of the future.

Regarding the strategic application drivers, they will address domains in which energy efficiency is essential: Solar energy systems and wireless systems. Each of the application drivers will provide: The specifications for the modelling and design activities, the requirements for the design methods and tools, the test cases for validation of models, design solutions and, where applicable, EDA tools and system and/or silicon demonstrators.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
STMicroelectronics s.r.l.	Italy	2.333.629 €	389.716 €	742.494 €
Politecnico di Torino	Italy	1.320.300 €	220.490 €	439.660 €
University of Salerno	Italy	240.000 €	40.080 €	79.920 €
NXP Semiconductors GA GmbH	Germany	875.167 €	146.153 €	0 €
Alma Mater Studiorum - Universita di Bologna	Italy	300.000 €	50.100 €	99.900 €
Acondicionamiento Terrassense	Spain	210.992 €	35.236 €	0 €
INACCESS NETWORKS	Greece	212.000 €	35.404 €	70.196 €
UNIVERSITY OF PATRAS	Greece	99.930 €	16.688 €	83.242 €
INTRACOM S.A. TELECOM SOLUTIONS	Greece	665.620 €	111.159 €	218.651 €
Consejo Superior de Investigaciones Cientificas	Spain	148.830 €	24.855 €	0 €
Numonyx S.r.l.	Italy	1.400.000 €	233.800 €	416.200 €
ETH Lab srl Eurotech Group	Italy	750.000 €	125.250 €	224.750 €
ON Semiconductor Belgium BVBA	Belgium	1.593.000 €	266.031 €	689.769 €
Universita' degli Studi di Catania	Italy	420.000 €	70.140 €	139.860 €
Consorzio Nazionale Interuniversitario per la Nanoelettronica	Italy	760.000 €	126.920 €	253.080 €
Slovak University of technology in Bratislava	Slovak Republic	276.000 €	46.092 €	229.908 €
Centro Ricerche Fiat S.C.p.A.	Italy	949.720 €	158.603 €	291.237 €
ON Semiconductor Slovakia, a.s.	Slovak Republic	380.000 €	63.460 €	126.540 €
Centre Suisse d'Electronique et de Microtechnique sSA	Switzerland	194.335 €	32.454 €	0 €
Total		13.129.523 €	2.192.631 €	4.105.407 €

Proposal number: 120218	Acronym: LAST POWER
Duration of the project (months): 42	
Project start date:	01 April 2010

Project summary

The project aims to make EU independent from other developed countries on wide band gap semiconductors high quality material, equipment and advanced processing. This field is of strategic importance since it involves the development of high efficient systems (of high revenue) for applications whenever an electric power is needed: from telecommunication to automotive, from consumer electronics to electrical household appliances, from industrial applications to home automation.

In particular, the consortium will develop an European technology including equipments (growth, processing and characterization), processing (growth and device fabrication) and characterization (methods and equipment) till some of the possible applications. The know how will be developed taking advantage by the presence of the most advanced public research centres and reference Universities on SiC and GaN technologies , large companies world leaders and many SME from 7 EU countries. 150mm 4H-SiC wafers of high quality are target establishing EU beyond the world wide state of the art, to date at 100mm wafers.

Also GaN heteroepitaxy is considered on Si (150mm). The material is targeted for high performance power devices (switches and amplifier), but the industry involved producing material will take advantage also by other huge markets, for example solid state illumination, were 150mm SiC wafers could be very soon requested. The innovative power devices developed using the enhanced material (larger diameter, higher quality) will be oriented for power consume reduction including consumer (air conditioning, electrical household) but also transport (hybrid and electrical vehicles). In this field the processing technologies for switching devices (MOSFET, normally off JFET) will be developed and demonstrators fabricated. Devices working at temperatures over 150°C will be developed including also necessary innovative packages.

Maximum eligible costs and public funding:

The negotiation concluded with the following eligible costs (final). The national funding figures are indicative until the establishment of the national grant agreements:

Partner	Country	Eligible costs	ENIAC JU funding	National funding
STMicroelectronics S.r.l.	Italy	3.410.275 €	569.516 €	954.855 €
LPE S.p.A.	Italy	1.907.880 €	318.616 €	454.075 €
Consiglio Nazionale delle Ricerche	Italy	354.162 €	59.145 €	117.936 €
ETC Epitaxial technology Center s.r.l.	Italy	1.624.072 €	271.220 €	478.569 €
Foundation for Research & Technology-Hellas	Greece	360.000 €	60.120 €	68.000 €
NOVA SiC SA ¹²	France	3.171.000 €	529.557 €	0 €
Centro Nacional de Microelectronica	Spain	493.000 €	82.331 €	0 €
Consorzio Catania Ricerche	Italy	96.000 €	16.032 €	31.968 €
Institute of High Pressure Physics UNIPRESS	Poland	376.000 €	62.792 €	225.600 €
Università della Calabria	Italy	96.000 €	16.032 €	31.968 €
SiCrystal AG	Germany	3.511.896 €	586.487 €	0 €
SEPS Technologies AB	Sweden	160.000 €	26.720 €	53.280 €
SenSiC AB	Sweden	265.000 €	44.255 €	88.245 €
Acreo AB	Sweden	370.000 €	61.790 €	123.210 €
ARISTOTELIO PANEPISTIMIO THESSALONIKIS	Greece	90.000 €	15.030 €	28.000 €
Total		16.285.285 €	2.719.643 €	2.655.706 €

¹² Subject to further eligibility check