



Piezoelectronic Transduction Memory Device

Fact Sheet

Project Information

PETMEM

Grant agreement ID: 688282

[Project website](#) 

DOI

[10.3030/688282](https://doi.org/10.3030/688282) 

Project closed

EC signature date

10 November 2015

Start date

1 December 2015

End date

31 May 2019

Funded under

INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

Total cost

€ 3 998 461,25

EU contribution

€ 3 340 621,00

Coordinated by

THE BIO NANO CENTRE
LIMITED LBG

 United Kingdom

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Objective

Computer clock speeds have not increased since 2003, creating a challenge to invent a successor to CMOS technology able to resume performance improvement. The key requirements for a viable alternative are scalability to nanoscale dimensions – following Moore’s Law – and simultaneous reduction of line voltage in order to limit switching power. Achieving these two aims for both transistors and memory allows clock speed to again increase with dimensional scaling, a result that would have great impact across the IT industry.

We propose to demonstrate an entirely new low-voltage, memory element that makes use of internal transduction in which a voltage state external to the device is converted to an internal acoustic signal that drives an insulator-metal transition. Modelling based on the properties of known materials at device dimensions on the 15 nm scale predicts that this mechanism enables device operation at voltages an order of magnitude lower than CMOS technology while achieving 10GHz operating speed; power is thus reduced two orders.

Fields of science (EuroSciVoc)

[natural sciences](#) > [computer and information sciences](#) > [software](#)

[natural sciences](#) > [computer and information sciences](#) > [internet](#)

[engineering and technology](#) > [electrical engineering, electronic engineering, information engineering](#) > [electronic engineering](#) > [sensors](#)

[natural sciences](#) > [biological sciences](#) > [ecology](#) > [ecosystems](#)

[social sciences](#) > [law](#)



Programme(s)

Topic(s)

[ICT-25-2015 - Generic micro- and nano-electronic technologies](#)

Call for proposal

[H2020-ICT-2015](#)

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Funding Scheme

[RIA - Research and Innovation action](#)

Coordinator



THE BIO NANO CENTRE LIMITED LBG

Net EU contribution

€ 532 808,50

Total cost

€ 532 808,75

Address

EUSTON ROAD 338

NW1 3BT LONDON

 **United Kingdom**



SME 

Yes

Region

London > Inner London — West > Camden and City of London

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Participants (12)



AIXACCT SYSTEMS GMBH

Germany

Net EU contribution

€ 338 250,00

Address

TALBOTSR 25
52068 Aachen

SME

Yes

Region

Nordrhein-Westfalen > Köln > Städteregion Aachen

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) [Website](#)
[Participation in EU R&I programmes](#)
[HORIZON collaboration network](#)

Total cost

€ 338 250,00



NPL MANAGEMENT LIMITED

United Kingdom

Net EU contribution

€ 348 608,75

Address

HAMPTON ROAD TEDDINGTON
TW11 0LW Middlesex

Region

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Total cost

€ 348 608,75



STIFTELSEN SINTEF

Norway

Net EU contribution

€ 326 987,50

Address

STRINDVEIEN 4
7034 Trondheim

Region

Norge > Trøndelag > Trøndelag

Activity type

Research Organisations

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Total cost

€ 326 987,50



MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV

Germany

Net EU contribution

€ 648 060,00

Address

HOFGARTENSTRASSE 8
80539 Munchen 

Region

Bayern > Oberbayern > München, Kreisfreie Stadt

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 648 060,00



UNIVERSITEIT GENT

 Belgium

Net EU contribution

€ 206 750,00

Address

SINT PIETERSNIEUWSTRAAT 25

9000 Gent 

Region

Vlaams Gewest > Prov. Oost-Vlaanderen > Arr. Gent

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

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[HORIZON collaboration network](#) 

Total cost

€ 206 750,00



IBM RESEARCH GMBH

 Switzerland

Net EU contribution

€ 0,00

Address

SAEUMERSTRASSE 4
8803 Rueschlikon 

Region

Schweiz/Suisse/Svizzera > Zürich > Zürich

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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[HORIZON collaboration network](#) 

Total cost

€ 277 840,00



SOLMATES BV

 Netherlands

Net EU contribution

€ 374 312,50

Address

AUKE VLEERSTRAAT 3
7521 PE Enschede 

SME 

Yes

Region

Oost-Nederland > Overijssel > Twente

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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[HORIZON collaboration network](#) 

Total cost

€ 374 312,50



DCA-INSTRUMENTS OY

Finland

Net EU contribution

€ 397 343,75

Address

VAJOSSUONKATU 8

20360 TURKU

SME

Yes

Region

Manner-Suomi > Etelä-Suomi > Varsinais-Suomi

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Total cost

€ 397 343,75



THE UNIVERSITY OF EDINBURGH

United Kingdom

Net EU contribution

€ 0,00

Address

OLD COLLEGE, SOUTH BRIDGE

EH8 9YL Edinburgh

Region

Scotland > Eastern Scotland > Edinburgh

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

Total cost
No data



ELECTROSCIENCES LTD

 United Kingdom

Net EU contribution
€ 55 000,00

Address
1 OSBORN ROAD
GU9 9QT Farnham 

SME 
Yes

Region
South East (England) > Surrey, East and West Sussex > West Surrey

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
[Contact the organisation](#) 
[Participation in EU R&I programmes](#) 
[HORIZON collaboration network](#) 

Total cost
€ 55 000,00



EIDGENOSSISCHE MATERIALPRUFUNGS- UND FORSCHUNGSANSTALT

 Switzerland

Net EU contribution
€ 0,00

Address
UEBERLANDSTRASSE 129
8600 Dubendorf 

Region
Schweiz/Suisse/Svizzera > Zürich > Zürich

Activity type

Higher or Secondary Education Establishments

Links

- Contact the organisation Website
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 380 000,00



SINTEF AS

Norway

Net EU contribution

€ 112 500,00

Address

STRINDVEGEN 4
7034 Trondheim



Activity type

Research Organisations

Links

- Contact the organisation Website
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 112 500,00

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Permalink: https://cordis.europa.eu/project/id/688282

European Union, 2025