

# PATENT ASSIGNMENT

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
Name	Execution Date
THE UNIVERSITY OF READING	05/04/2011
<b>RECEIVING PARTY DATA</b>	
Name:	Stephen Leach
Street Address:	32 Rodney Road, Backwell
City:	North Somerset
State/Country:	UNITED KINGDOM
Postal Code:	BS48 3HB
Name:	James Anderson
Street Address:	88 Lower Henley Road, Caversham
City:	Reading
State/Country:	UNITED KINGDOM
Postal Code:	RG4 5LE
<b>PROPERTY NUMBERS Total: 1</b>	
Property Type	Number
Application Number:	13144653
<b>CORRESPONDENCE DATA</b>	
Fax Number:	(419)874-1130
Phone:	4198741100
Email:	golupski@fraser-ip.com
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i>	
Correspondent Name:	William J. Clemens
Address Line 1:	28366 Kensington Lane
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ATTORNEY DOCKET NUMBER:	1-17745

CH \$40.00 13144653

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**PATENT**  
**REEL: 027353 FRAME: 0665**

NAME OF SUBMITTER:

William J. Clemens

**Total Attachments: 11**

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### Assignment

THIS ASSIGNMENT AGREEMENT dated <sup>May</sup> 4 April 2011 is made

BETWEEN:

- (1) **THE UNIVERSITY OF READING** whose principal administrative address is at Whiteknights House, Whiteknights, Reading RG6 6AH ('Reading'); and
- (2) **Stephen Leach** an individual of 32 Rodney Road, Backwell, North Somerset, BS48 3HB, UK ('Leach'); and
- (3) **James Anderson** an individual of 88 Lower Henley Road, Caversham, Reading, RG4 5LE, UK ('Anderson');

### RECITALS

- (1) Reading owns certain inventions which were created by the Inventors (defined below as the 'Perspex IP').
- (2) There is a revenue share agreement between Reading, Leach, Anderson and Oswaldo Cadénas, dated 23<sup>rd</sup> July 2009.
- (3) Reading has decided that it does not wish to continue to try to commercialise the Perspex IP.
- (4) Reading is therefore willing to assign all its right, title and interest in the Perspex IP subject to the provisions of this assignment agreement.

THIS AGREEMENT WITNESSES as follows:

### 1 Definitions

In this Assignment, the following words shall have the following meanings:

'Anderson IP'	any and all inventions, discoveries, improvements, know-how, specifications, designs, developments and software owned by Reading at the Effective Date which have been originated, conceived, written or made solely by Anderson and which are identified in the attached Schedule 1 part 1c, or relate to the P3 Patent, or relate to the Perspex Innovation, and all Intellectual Property Rights in them, but excluding the P3 Patent
'Arising IP'	has the meaning defined in the Leach Assignment
"Assigned IP"	means the rights and remedies assigned and transferred to Anderson in accordance with clause 2.1.1 and/or the rights

	and remedies assigned and transferred to Anderson and Leach in accordance with clause 2.1.2
'Effective Date'	12 April 2011
'Intellectual Property Rights'	means intellectual property or related rights including any and all patents, patent applications, utility rights, rights in inventions, including the right to apply for patent or other similar protection in any territory or group of territories in respect of the Perspex IP, rights in confidential information (to the extent such rights are property rights capable of assignment in any particular jurisdiction), designs, copyright, database rights, design rights, topography rights, rights in know-how or other similar intellectual property rights in any country of the world
'Inventors'	Leach and Anderson
'Joint IP'	any and all inventions, discoveries, improvements, know-how, specifications, designs, software and developments owned by Reading at the Effective Date which have been originated, conceived, written or made by Leach solely or by Anderson and Leach jointly and which are identified in the attached Schedule 1 part 1c or relate to the P4 Patent or relate to the Perspex Innovation and all Intellectual Property Rights in them, but excluding the P4 Patent
'Leach Assignment'	the assignment agreement between Reading and Leach dated 8 <sup>th</sup> July 2009
'P3 Patent'	the patent application(s) identified in the attached Schedule 1 part 1a and any patent applications, supplementary protection certificates, continuations, continuations-in-part, extensions, reissues, and divisions, which are based upon or derive priority from those listed in Schedule 1a, and any patents granted pursuant to the foregoing
'P4 Patent'	the patent application(s) identified in the attached Schedule 1 part 1b and any patent applications, supplementary protection certificates, continuations, continuations-in-part, extensions, reissues, and divisions, which are based upon or derive priority from those listed in Schedule 1b and any patents granted pursuant to the foregoing
'Patents'	the P3 Patent and the P4 Patent

'Perspex Innovation'	transreal arithmetic, transcomplex arithmetic and the embodiment of such mathematical models in computational processors
'Perspex IP'	the Anderson IP and the Joint IP and the Patents
'Revenue Sharing Agreement'	the agreement entered into by and between Reading, Leach, Anderson and Cadenas dated 23 <sup>rd</sup> July 2009
'Perspex Confidential Information'	Information relating to the Perspex IP (whether in writing, orally or otherwise) which is in the possession of Reading and is reasonably understood to be confidential

## **2 Assignment**

2.1 Subject to clause 4 and in consideration of £1.00, the receipt and sufficiency of which Reading acknowledges, Reading

2.1.1 hereby assigns and transfers to Anderson absolutely all its right, title and interest in the P3 Patent and the Anderson IP and all rights of action, powers and benefits arising from ownership of the P3 Patent and Anderson IP, including without limitation the right to sue for damages and other legal and equitable remedies in respect of all causes of action arising prior to, on or after the date of this Assignment with effect from the Effective Date; and

2.1.2 hereby assigns and transfers to Anderson and Leach absolutely all its right, title and interest in the P4 Patent and the Joint IP and all rights of action, powers and benefits arising from ownership of the P4 Patent and the Joint IP, including without limitation the right to sue for damages and other legal and equitable remedies in respect of all causes of action arising prior to, on or after the date of this Assignment with effect from the Effective Date.

2.2 Reading shall execute such documents and give such assistance as Anderson and/or Leach may reasonably require (at the expense of Anderson and/or Leach as applicable):

2.2.1 to secure the vesting in Anderson of all rights in the P3 Patent and the Anderson IP;

2.2.2 to secure the vesting in Anderson and Leach of all rights in the P4 Patent and the Joint IP;

2.2.3 to uphold Anderson and Leach's rights (as set out in 2.1) in the Perspex IP;

2.3.4 to defeat any challenge to the validity of, and resolve any questions concerning the Perspex IP.

**3 Warranties, representations and undertakings**

- 3.1 No representations, warranties or undertakings are given by Reading as to its ownership of the rights assigned under this agreement or as to their validity, enforceability or non-infringement.
- 3.2 Subject to the foregoing each Party represents and warrants to the other Parties that it has legal power, authority and right to enter into this Agreement and to perform its respective obligations in this Agreement.
- 3.3 Neither Reading nor Anderson nor Leach give any warranty, representation or undertaking that the P3 Patent or the P4 Patent will proceed to grant.

**4 Rights Retained by Reading**

- 4.1 Reading retains the right to keep copies of, use and disclose (subject to clause 4.5) the Perspex IP for its own academic, research and teaching purposes (the 'Permitted Purpose').
- 4.2 Reading shall take all reasonable measures to ensure the confidentiality of the Perspex Confidential Information and neither disclose nor permit the disclosure of any Perspex Confidential Information to any person.
- 4.3 Reading's obligations under Clause 4.2 shall not apply to Perspex Confidential Information that:
  - 4.2.1 Is or becomes publicly known, other than as the result of a breach of the terms of this Agreement by Reading;
  - 4.2.2 Reading obtains from a third-party, and the third-party was not under any obligation of confidentiality with respect to the Perspex Confidential Information; or
  - 4.2.3 Is approved in writing by Anderson or Leach for release; or
  - 4.2.4 Is required to be disclosed by order of a court or other public body that has jurisdiction over Reading, provided that before making such a disclosure Reading shall, if the circumstances permit: inform Anderson and Leach of the proposed disclosure as soon as possible and if possible before the Court or other public body orders the disclosure of the Perspex Confidential Information; and ask the court or other public body to treat the Perspex Confidential Information as confidential.
- 4.4 Reading's obligations in 4.2 shall apply without limitation in time.

- 4.5 Reading will take all practical steps to ensure that material intended for publication which would disclose any Perspex IP not already in the public domain is submitted to Anderson at least 30 days in advance of the intended date for submission for publication. Anderson is entitled to require that submission be delayed if this is necessary to protect the development of the Intellectual property. Any such delay shall not exceed 18 months. In addition Reading will at the reasonable request of Anderson and to the extent practicable ensure the revision of any such material where necessary in order to protect the Intellectual Property Rights in the Perspex IP.
- 4.6 This agreement shall not prevent or hinder registered students of Reading submitting for degrees of Reading theses based on the Perspex IP or from following Reading's procedures for examination and for admission to postgraduate degree status provided that publication of any material which discloses any Perspex IP not already in the public domain shall be subject to the consent of Anderson (not to be unreasonably withheld) unless such publication is only by means of placing the thesis on restricted access in the Reading's library.
- 4.7 Notwithstanding the above, to the extent that Reading or any other person referred to or contemplated by this clause requires a licence of any Assigned IP in order to benefit from this clause 4, Anderson and Leach hereby irrevocably grant such a licence on a royalty free fully paid up basis.
- 4.8 Anderson and Leach shall execute such documents and give such assistance as Reading may reasonably require (at the expense of Reading) to give Reading the full effect of this clause 4.

## **5 Improvements**

- 5.1 With effect from the Effective Date the Leach Assignment is hereby terminated without prejudice to the accrued rights and remedies of the parties and accordingly Leach is hereby released from his obligation under the Leach Assignment to assign Arising IP to Reading (with the intention that any Arising IP created prior to the Effective Date was assigned to Reading, but Reading will not have any claim to ownership of Arising IP created by Leach after the Effective Date.)
- 5.2 Notwithstanding Anderson's employment at Reading, Reading will not claim ownership of intellectual property rights relating to the Perspex Innovation created by Anderson outside his employment duties.

## **6 Law and Jurisdiction**

The validity, construction and performance of this assignment shall be governed by English Law, and Reading, Leach and Anderson submit to the exclusive jurisdiction of the English and Welsh courts in respect of any dispute arising in connection therewith.

## 7 Third parties

Except as contemplated in clause 4, this Agreement does not create any right enforceable by any person who is not a party to it ('Third Party') under the Contracts (Rights of Third Parties) Act 1999, but this clause does not affect any right or remedy of a Third Party which exists or is available apart from that Act.

EXECUTED as an AGREEMENT by the parties on the date first above written:—

Signed for and on behalf of  
**THE UNIVERSITY OF READING**

E. Kirby ..... IP / Legal Adviser

4 May 2011 ..... Date

Witness Signature C. A. Bethell .....

Witness Name C. A. BETHELL .....

Witness Address 7 WOODMERE CLOSE, EARLEY, READING, RG6 5Q 1

4 / 5 / 11 ..... Date

Signed for an on behalf of  
**Stephen Leach**

Signature S. Leach .....  
24/4/2011 ..... Date

Witness Signature M. Dawles .....

Witness Name M. DAWLES .....

Witness Address 33 RIDGWAY RD .....

BRISTOL  
24.4.2011 ..... Date



Signed for an on behalf of  
James Anderson

Signature

*James Anderson*  
*4.5.2011* Date

Witness Signature

*C. A. Bethell*

Witness Name

*C. A. BETHELL*

Witness Address

*7 WOODMERE CLOSE, EARLY, READING, RG6504*

*4/5/11* Date

# **SCHEDULE 1 – Part 1a**

## **P3 Patent**

The following patent applications and all patent and patent applications derived from them:

Serial Number	Title	File Date	Territory	
10-2009-7024885	Perspex Instruction (P3)	30/05/2008	South Korea	Filed
JP 2010-509892	Perspex Instruction (P3)	30/05/2008	Japan	Filed
CN 200880101550.5	Perspex Instruction (P3)	30/05/2008	China	Filed
10105311.9	Perspex Instruction (P3)	31/05/2010	Hong Kong	Filed
EP08750720.8	Perspex Instruction (P3)	30/05/2008	Europe	Filed
12/601999	Perspex Instruction (P3)	30/05/2008	USA	Filed
GB 0921638.3	Perspex Instruction (P3)	30/05/2008	United Kingdom	Filed
CA2689248	Perspex Instruction (P3)	30/05/2008	Canada	Filed
PCT/GB2008/001821	Perspex Instruction (P3)	30/05/2008	PCT	Nat'l Filings Requested
GB0710377.3	Perspex Instruction (P3)	31/05/2007	United Kingdom	Abandoned

# **SCHEDULE 1 - Part 1b**

## **P4 Patent**

All patent and patent applications derived and/or claiming priority from:

The PCT application: PCT/GB2010/050064

which claimed priority from the patent application UK 0900667.7 "Processors"

**SCHEDULE 1c****Details of the Anderson IP and Joint IP**

All and any working notes in relation to the Perspex Innovation which are contained in the research materials maintained personally by the Inventors including but not limited to the Log books identified in the materials listed below.

All Intellectual Property relating to the Perspex Innovation as owned by the University and included in the materials listed below:

<b>Format</b>	<b>Title</b>	<b>Author</b>
White Paper	Perspex Machine (Confidential)	Dr James Anderson
White Paper	Multiplying Large Matrices	Dr James Anderson
Technical Memorandum	Processor Diagrams	Stephen Leach
Technical Memorandum	Key to Processor Diagrams	Stephen Leach
Technical Memorandum	Load File Format	Stephen Leach
Technical Memorandum	Implementing Processor Diagrams	Stephen Leach
Technical Memorandum	Processor Work Cycle	Stephen Leach
Technical Memorandum	Programming Language Issues	Stephen Leach
Technical Memorandum	Valid Programs	Stephen Leach
Technical Memorandum	Initialising the Perspex Machine	Stephen Leach
Technical Memorandum	Perspex Machine: 2D Architecture	Dr James Anderson
Technical Memorandum	Perspex Machine: Addressing	Dr James Anderson
Technical Memorandum	Perspex Machine 2: Architecture	Dr James Anderson
Technical Memorandum	Perspex Machine 2: Benchmarks	Dr James Anderson
Technical Memorandum	Matrix Multiplication	Dr James Anderson
Technical Memorandum	Perspex Machine: Phase One Due Diligence	Dr James Anderson
Technical Memorandum	Perspex Machine (Phase 2): Orientation Notes for Due Diligence	Dr James Anderson
Technical Memorandum	Lessons Learned in Writing and Algorithm to Perform Matrix Multiplication	Stephen Leach
Technical Memorandum	Motivation for design changes in Perspex Machine 2	Stephen Leach
Technical Memorandum	Towards Perspex 3	Stephen Leach
Technical Memorandum	Perspex 3	Dr James Anderson and Stephen Leach
Technical Memorandum	CommercialISE Final Technical Report	Dr James Anderson
Technical Memorandum	Comparison of Perspex and Warp Architectures	Dr James Anderson

Technical Memorandum	Material for Hopping Patent	Dr James Anderson
Technical Memorandum	Solution of Quadratic Equations	Dr James Anderson and Stephen Leach
Technical Memorandum	Linear Layout Tactic	Stephen Leach
Commercial Memorandum	Market Risks	Dr James Anderson
Commercial Memorandum	Perspex Chip	Dr James Anderson and Stephen Leach
Wiki	Benchmarks	Dr James Anderson
Wiki	Code Density	Stephen Leach
Wiki	SWOT Analysis	Stephen Leach
Wiki	Download and Install the Slipstream Toolkit	Stephen Leach
Wiki	Slipstream Toolkit	Stephen Leach
Wiki	Network Tools Overview	Stephen Leach
Wiki	Download and Install Simulation	Stephen Leach
Wiki	The Web-based IDE	Stephen Leach
Wiki	The Command-line IDE	Stephen Leach
Wiki	Simulation version history	Stephen Leach
Wiki	Potential Customers	Dr James Anderson
Wiki	Potential Funders	Dr James Anderson
Software	Pop 11 library of integer and floating-point implementations of transreal arithmetic, arithmetical algorithms and testing routines for Perspex simulators and hardware	Dr James Anderson
Software	C library of floating-point implementations of transreal arithmetic and numerical algorithms	Dr James Anderson
Software	Fortran implementation of AWE benchmark	Dr James Anderson
Software	Perspex 1: Simulator for the Perspex 1 architecture, compiler for the GIST programming language, assembler/loader to translate system state into token stream, multiple implementations of transreal arithmetic	Stephen Leach
Software	Perspex 2: Simulator for the Perspex 2 architecture, Beanshell interpreter for writing programs, web-based IDE	Stephen Leach
Software	Perspex 3: Simulator for the Perspex 3 architecture, Slipstream programming language	Stephen Leach
Log book	Perspex Architecture 1, Perspex Architecture 2, Perspex Architecture 3, fixed-point transreal arithmetic, infinite sums, benchmarks, matrix multiplication, token	Dr James Anderson

	hopping, chip IO, differential calculus, on-chip power smoothing, bitwise operations, floating point transreal arithmetic, floating-point exceptions, AEW benchmark, transcomplex numbers, transcomplex exponential and logarithm, circular I/o buffer, language design	
Log book	Perspex Architecture 1, Perspex Architecture 2, Perspex Architecture 3, parallel stack implementation as a foundation for recursion, matrix multiplication, compiling slipstream programs, slipstream programming, transcomplex numbers.	Stephen Leach
Zip file	Toolchain model for Perspex compiler and benchmark application	Stephen Leach
White Paper	Perspex Machine (Public)	Dr James Anderson
White Paper	Perspex Machine Overview (Public)	Dr James Anderson
White Paper	Perspex Machine Overview (Public) (for publication)	Dr James Anderson

Such object and source code as is digitally recorded on the DVD attached to this agreement but excluding any software programs proprietary to any third parties which have been included on the DVD.

The following unregistered trade marks

Country	Mark	Date first used	Goods or services in respect of which the mark has been used
Worldwide	Transreal		Computer hardware and software
Worldwide	Perspex Machine		Computer hardware and software
Worldwide	Slipstream		Computer hardware and software
Worldwide	Transcomplex		Computer hardware and software
Worldwide	Transcomputation		Computer hardware and software
Worldwide	Nullity processor		Computer hardware and software
Worldwide	Infinity processor		Computer hardware and software