



# Invitation to Quote

Invitation to Quote (ITQ) on behalf of **STFC**

Subject Contracting Authority **SKA LFAA Calibration Correlator**

Sourcing reference number **PR17138**

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# Section 1 – About UK Shared Business Services

## Putting the business into shared services

UK Shared Business Services Ltd (UK SBS) brings a commercial attitude to the public sector; helping Contracting Authorities improve efficiency, generate savings and modernise.

It is our vision to become the leading service provider for Contracting Authorities for of shared business services in the UK public sector, continuously reducing cost and improving quality of business services for Government and the public sector.

Our broad range of expert services is shared by our Contracting Authorities. This allows Contracting Authorities the freedom to focus resources on core activities; innovating and transforming their own organisations.

Core services include Procurement, Finance, Grants Admissions, Human Resources, Payroll, ISS, and Property Asset Management all underpinned by our Service Delivery and Contact Centre teams.

UK SBS is a people rather than task focused business. It's what makes us different to the traditional transactional shared services centre. What is more, being a not-for-profit organisation owned by the Department for Business, Energy & Industrial Strategy (BEIS), UK SBS' goals are aligned with the public sector and delivering best value for the UK taxpayer.

UK Shared Business Services Ltd changed its name from RCUK Shared Services Centre Ltd in March 2013.

## Our Customers

Growing from a foundation of supporting the Research Councils, 2012/13 saw Business, Energy and Industrial Strategy (BEIS) transition their procurement to UK SBS and Crown Commercial Services (CCS – previously Government Procurement Service) agree a Memorandum of Understanding with UK SBS to deliver two major procurement categories (construction and research) across Government.

UK SBS currently manages £700m expenditure for its Contracting Authorities.

Our Contracting Authorities who have access to our services and Contracts are detailed [here](#).

## Section 2 – About the Contracting Authority

### Science and Technology Facilities Council (STFC)

STFC is a world-leading multi-disciplinary science organisation, whose goal is to deliver economic, societal, scientific and international benefits to the UK and its people – and more broadly to the world.

STFC support an academic community of around 1,700 in particle physics, nuclear physics, and astronomy including space science, who work at more than 50 universities and research institutes in the UK, Europe, Japan and the United States, including a rolling cohort of more than 900 PhD students.

The organisation's large-scale scientific facilities in the UK and Europe are used by more than 3,500 users each year, carrying out more than 2,000 experiments and generating around 900 publications.

The combination of access to world-class research facilities and scientists, office and laboratory space, business support, and an environment which encourages innovation has proven a compelling combination, attracting start-ups, SMEs and large blue chips such as IBM and Unilever.

### Examples of funded research

- STFC is providing the design infrastructure for the £23bn UK microelectronics sector that underpins strategically important industries worth £78bn to the UK economy
- STFC's ISIS facility and its users, working in partnership with the NHS, developed a novel material to improve the treatment of cleft lip and palate, speeding up healing times and reducing operating costs
- STFC's Synchrotron Radiation Source was used to understand how conventional anti-malarial drugs work, allowing the development of more effective treatment to reduce the devastating global impact of malaria
- STFC's ISIS facility is identifying new materials that can safely and conveniently store hydrogen, enabling the development of hydrogen-fuelled cars reducing reliance on fossil fuels and cutting carbon emissions

[www.stfc.ac.uk](http://www.stfc.ac.uk)

## Section 3 - Working with the Contracting Authority .

In this section you will find details of your Procurement contact point and the timescales relating to this opportunity.

| Section 3 – Contact details |                                                       |                                                                                                                                                                                                                                                                                                        |
|-----------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1                         | Contracting Authority Name and address                | <b>Science and Technology Facilities Council</b><br>Polaris House<br>North Star Avenue<br>Swindon<br>SN2 1SZ                                                                                                                                                                                           |
| 3.2                         | Buyer name                                            | Andrew Fernandez                                                                                                                                                                                                                                                                                       |
| 3.3                         | Buyer contact details                                 | <a href="mailto:Andrew.fernandez@uksbs.co.uk">Andrew.fernandez@uksbs.co.uk</a>                                                                                                                                                                                                                         |
| 3.4                         | Estimated value of the Opportunity                    | Approximately £160,000 (inclusive of VAT)                                                                                                                                                                                                                                                              |
| 3.5                         | Process for the submission of clarifications and Bids | <b>All correspondence shall be submitted within the Emptoris e-sourcing tool. Guidance Notes to support the use of Emptoris is available <a href="#">here</a>. Please note submission of a Bid to any email address including the Buyer <u>will</u> result in the Bid <u>not</u> being considered.</b> |

| Section 3 - Timescales |                                                                                                        |                                         |
|------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 3.6                    | Date of Issue of Contract Advert and location of original Advert                                       | 27/11/2017<br>Location Contracts Finder |
| 3.7                    | Latest date/time ITQ clarification questions shall be received through Emptoris messaging system       | 02/12/2017<br>14:00                     |
| 3.8                    | Latest date/time ITQ clarification answers should be sent to all Bidders by the Buyer through Emptoris | 03/12/2017<br>14:00                     |
| 3.9                    | Latest date/time ITQ Bid shall be submitted through Emptoris                                           | 07/12/2017<br>14:00                     |
| 3.10                   | Date/time Bidders should be available if face to face clarifications are required                      | N/A                                     |
| 3.11                   | Anticipated selection and the selections of Bids notification date                                     | 20/12/2017                              |
| 3.12                   | Anticipated Award date                                                                                 | 21/12/2017                              |
| 3.13                   | Anticipated Contract Start date                                                                        | 22/12/2017                              |

|      |                               |            |
|------|-------------------------------|------------|
| 3.14 | Anticipated Contract End date | 21/12/2017 |
| 3.15 | Bid Validity Period           | 60 Days    |

## Section 4 – Specification

### SKA LFAA Station Calibration Correlator FPGA Hardware

#### **Introduction**

The Square Kilometre Array (SKA) is a project to deliver the world's largest Radio Telescope. The Low Frequency Aperture Array (LFAA) will be located in Australia. Operating in the frequency range of 50MHz-350MHz and comprising of 500 interconnected stations, each containing 256 Antenna.

The channelized data is streamed from the antenna in complex form, for two polarities. FPGA based accelerator hardware is required to correlate the data, by performing a complex multiple and accumulate function for all values of antenna data for each corresponding frequency channel over a set period of time for all antenna in the station. Front-end memory is required for ordering of received data from multiple sources, so that complete frequency channel sets are available for processing. Values being accumulated during the period of time are stored in local memory before the final values are sent to a computer for analysis.

Data is transferred between antenna Tile Processing Modules using 40GbE, interconnected using standard network switches.

#### **Requirements**

- Number of boards required: 20
- FPGA Accelerator Board with a PCIe Form-Factor
- 14nm FPGA with 17.4Gbs Capable Transceivers and core clock rates up to 1GHz
- Number of DSP Blocks: Greater than 10,000 18x19 Multipliers
- A minimum of 3 Banks of at least 4GB DDR4 Memory
- A minimum of 2x QSFP28 Cages for 2x40GbE
- Power Requirements: At least 150 Watts but not to exceed 375 Watts
- FPGA to be supplied should ideally be a Production Part not an Engineering Sample

#### **Timescales**

Full delivery must be completed no later than week ending 16th March 2018. A project plan outlining firm timescales and taking into account any third-party lead times as required to meet this delivery deadline should be proposed as part of any response.

A phased delivery plan – consisting of batches of 5 boards – is desirable, and such may be

supported with milestone payments for each batch to facilitate this.

**Options**

Please provide a per board price for additional boards up a maximum of 5 additional boards. We reserve the right to exercise this option in part or in full to purchase additional boards, or not at all, following successful completion of this ITQ.



## Section 5 – Evaluation model

The evaluation model below shall be used for this ITQ, which will be determined to two decimal places.

Where a question is 'for information only' it will not be scored.

The evaluation team may comprise staff from UK SBS, and the Contracting Authority ----- and any specific external stakeholders the Contracting Authority deems required. After evaluation the scores will be finalised by performing a calculation to identify (at question level) the mean average of all evaluators (Example – a question is scored by three evaluators and judged as scoring 5, 5 and 6. These scores will be added together and divided by the number of evaluators to produce the final score of 5.33 ( $5+5+6=16 \div 3 = 5.33$ ))

| Pass / fail criteria |          |                                                               |
|----------------------|----------|---------------------------------------------------------------|
| Questionnaire        | Q No.    | Question subject                                              |
| Commercial           | SEL1.2   | Employment breaches/ Equality                                 |
| Commercial           | FOI1.1   | Freedom of Information Exemptions                             |
| Commercial           | AW1.1    | Form of Bid                                                   |
| Commercial           | AW1.3    | Certificate of Bona Fide Bid                                  |
| Commercial           | AW3.1    | Validation check                                              |
| Commercial           | AW4.1    | Contract Terms                                                |
| Price                | AW5.5    | E Invoicing                                                   |
| Price                | AW5.6    | Implementation of E-Invoicing                                 |
| Quality              | AW6.1    | Compliance to the Specification                               |
| Commercial           | SEL3.11  | Compliance to Section 54 of the Modern Slavery Act            |
| -                    | -        | Invitation to Quote – received on time within e-sourcing tool |
| Quality              | PROJ1.1  | Does the board comply with the PCIe x16 Form-Factor           |
| Quality              | PROJ1.2  | Is the board based around a 14nm FPGA                         |
| Quality              | PROJ1.3  | Is the FPGA Capable of Core Clock Rates up to 1GHz?           |
| Quality              | PROJ1.4  | Does the FPGA have greater than 10,000 18x19 Multipliers?     |
| Quality              | PROJ1.5  | Does the Board Include DDR4 Memory?                           |
| Quality              | PROJ1.6  | How Many Banks of DDR4 Memory are Attached to the FPGA?       |
| Quality              | PROJ1.7  | What is the Power Requirement of the Board?                   |
| Quality              | PROJ1.8  | Does the FPGA Include MGT Capable Transceivers?               |
| Quality              | PROJ1.9  | Does the FPGA have QSFP28 Cages Attached?                     |
| Quality              | PROJ1.10 | Is Standard HDL Support Provided for the FPGA via             |

|         |          |                                                       |
|---------|----------|-------------------------------------------------------|
|         |          | Reference Design, Constraints File or Schematics?     |
| Quality | PROJ1.11 | Can the Boards be Delivered No Later than March 2018? |

## Scoring criteria

### Evaluation Justification Statement

In consideration of this particular requirement the Contracting Authority has decided to evaluate Potential Providers by adopting the weightings/scoring mechanism detailed within this ITQ. The Contracting Authority considers these weightings to be in line with existing best practice for a requirement of this type.

| Questionnaire | Q No.    | Question subject                                            | Maximum Marks |
|---------------|----------|-------------------------------------------------------------|---------------|
| Price         | AW5.2    | Price                                                       | 60%           |
| Quality       | PROJ1.12 | Is the FPGA a Production or Engineering Sample Part         | 8%            |
| Quality       | PROJ1.13 | What is the Capacity of Each DDR4 Memory Bank?              | 8%            |
| Quality       | PROJ1.14 | What Speed are the FPGA MGT Capable Transceivers?           | 8%            |
| Quality       | PROJ1.15 | What is the Power Configuration of the Board?               | 8%            |
| Quality       | PROJ1.16 | Is an OpenCL Board Support Package Supplied with the Board? | 8%            |

## Evaluation of criteria

### Non-Price elements

Each question will be judged on a score from 0 to 100, which shall be subjected to a multiplier to reflect the percentage of the evaluation criteria allocated to that question.

Where an evaluation criterion is worth 20% then the 0-100 score achieved will be multiplied by 20%.

Example if a Bidder scores 60 from the available 100 points this will equate to 12% by using the following calculation:

$$\text{Score} = \{\text{weighting percentage}\} \times \{\text{bidder's score}\} = 20\% \times 60 = 12$$

The same logic will be applied to groups of questions which equate to a single evaluation criterion.

The 0-100 score shall be based on (unless otherwise stated within the question):

|     |                                                                                                                                                                                                                                                                                              |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0   | The Question is not answered or the response is completely unacceptable.                                                                                                                                                                                                                     |
| 10  | Extremely poor response – they have completely missed the point of the question.                                                                                                                                                                                                             |
| 20  | Very poor response and not wholly acceptable. Requires major revision to the response to make it acceptable. Only partially answers the requirement, with major deficiencies and little relevant detail proposed.                                                                            |
| 40  | Poor response only partially satisfying the selection question requirements with deficiencies apparent. Some useful evidence provided but response falls well short of expectations. Low probability of being a capable supplier.                                                            |
| 60  | Response is acceptable but remains basic and could have been expanded upon. Response is sufficient but does not inspire.                                                                                                                                                                     |
| 80  | Good response which describes their capabilities in detail which provides high levels of assurance consistent with a quality provider. The response includes a full description of techniques and measurements currently employed.                                                           |
| 100 | Response is exceptional and clearly demonstrates they are capable of meeting the requirement. No significant weaknesses noted. The response is compelling in its description of techniques and measurements currently employed, providing full assurance consistent with a quality provider. |

All questions will be scored based on the above mechanism. Please be aware that the final score returned may be different as there may be multiple evaluators and their individual scores will be averaged (mean) to determine your final score.

### Example

Evaluator 1 scored your bid as 60  
Evaluator 2 scored your bid as 60  
Evaluator 3 scored your bid as 40  
Evaluator 4 scored your bid as 40  
Your final score will  $(60+60+40+40) \div 4 = 50$

**Price elements** will be judged on the following criteria.

The lowest price for a response which meets the pass criteria shall score 100.  
All other bids shall be scored on a pro rata basis in relation to the lowest price. The score is then subject to a multiplier to reflect the percentage value of the price criterion.

For example - Bid 1 £100,000 scores 100.

Bid 2 £120,000 differential of £20,000 or 20% remove 20% from price scores 80

Bid 3 £150,000 differential £50,000 remove 50% from price scores 50.

Bid 4 £175,000 differential £75,000 remove 75% from price scores 25.

Bid 5 £200,000 differential £100,000 remove 100% from price scores 0.

Bid 6 £300,000 differential £200,000 remove 100% from price scores 0.

Where the scoring criterion is worth 50% then the 0-100 score achieved will be multiplied by 50.

In the example if a supplier scores 80 from the available 100 points this will equate to 40% by using the following calculation:  $\text{Score/Total Points multiplied by 50}$  ( $80/100 \times 50 = 40$ )

The lowest score possible is 0 even if the price submitted is more than 100% greater than the lowest price.

## **Section 6 – Evaluation questionnaire**

Bidders should note that the evaluation questionnaire is located within the **e-sourcing questionnaire**.

Guidance on completion of the questionnaire is available at  
<http://www.uksbs.co.uk/services/procure/Pages/supplier.aspx>

**PLEASE NOTE THE QUESTIONS ARE NOT NUMBERED SEQUENTIALLY**

## Section 7 – General Information

### What makes a good bid – some simple do's 😊

#### DO:

- 7.1 Do comply with Procurement document instructions. Failure to do so may lead to disqualification.
- 7.2 Do provide the Bid on time, and in the required format. Remember that the date/time given for a response is the last date that it can be accepted; we are legally bound to disqualify late submissions. Unless formally requested to do so by UK SBS e.g. Emptoris system failure
- 7.3 Do ensure you have read all the training materials to utilise e-sourcing tool prior to responding to this Bid. If you send your Bid by email or post it will be rejected.
- 7.4 Do use Microsoft Word, PowerPoint Excel 97-03 or compatible formats, or PDF unless agreed in writing by the Buyer. If you use another file format without our written permission we may reject your Bid.
- 7.5 Do ensure you utilise the Emptoris messaging system to raise any clarifications to our ITQ. You should note that we will release the answer to the question to all Bidders and where we suspect the question contains confidential information we may modify the content of the question to protect the anonymity of the Bidder or their proposed solution
- 7.6 Do answer the question, it is not enough simply to cross-reference to a 'policy', web page or another part of your Bid, the evaluation team have limited time to assess bids and if they can't find the answer, they can't score it.
- 7.7 Do consider who the Contracting Authority is and what they want – a generic answer does not necessarily meet every Contracting Authority's needs.
- 7.8 Do reference your documents correctly, specifically where supporting documentation is requested e.g. referencing the question/s they apply to.
- 7.9 Do provide clear , concise and ideally generic contact details; telephone numbers, e-mails and fax details.
- 7.10 Do complete all questions in the questionnaire or we may reject your Bid.
- 7.11 Do check and recheck your Bid before dispatch.

## What makes a good bid – some simple do not's ☹

### DO NOT

- 7.12 Do not cut and paste from a previous document and forget to change the previous details such as the previous buyer's name.
- 7.13 Do not attach 'glossy' brochures that have not been requested, they will not be read unless we have asked for them. Only send what has been requested and only send supplementary information if we have offered the opportunity so to do.
- 7.14 Do not share the Procurement documents, they are confidential and should not be shared with anyone without the Buyers written permission.
- 7.15 Do not seek to influence the procurement process by requesting meetings or contacting UK SBS or the Contracting Authority to discuss your Bid. If your Bid requires clarification the Buyer will contact you. All information secured outside of formal Buyer communications shall have no Legal standing or worth and should not be relied upon.
- 7.16 Do not contact any UK SBS staff or the Contracting Authority staff without the Buyers written permission or we may reject your Bid.
- 7.17 Do not collude to fix or adjust the price or withdraw your Bid with another Party as we will reject your Bid.
- 7.18 Do not offer UK SBS or the Contracting Authority staff any inducement or we will reject your Bid.
- 7.19 Do not seek changes to the Bid after responses have been submitted and the deadline for Bids to be submitted has passed.
- 7.20 Do not cross reference answers to external websites or other parts of your Bid, the cross references and website links will not be considered.
- 7.21 Do not exceed word counts, the additional words will not be considered.
- 7.22 Do not make your Bid conditional on acceptance of your own Terms of Contract, as your Bid will be rejected.

## Some additional guidance notes

- 7.23 All enquiries with respect to access to the e-sourcing tool and problems with functionality within the tool must be submitted to Crown Commercial Service (previously Government Procurement Service), Telephone 0345 010 3503.
- 7.24 Bidders will be specifically advised where attachments are permissible to support a question response within the e-sourcing tool. Where they are not permissible any attachments submitted will not be considered as part of the evaluation process.
- 7.25 Question numbering is not sequential and all questions which require submission are included in the Section 6 Evaluation Questionnaire.
- 7.26 Any Contract offered may not guarantee any volume of work or any exclusivity of supply.
- 7.27 We do not guarantee to award any Contract as a result of this procurement
- 7.28 All documents issued or received in relation to this procurement shall be the property of the Contracting Authority. / UKSBS.
- 7.29 We can amend any part of the procurement documents at any time prior to the latest date / time Bids shall be submitted through Emptoris.
- 7.30 If you are a Consortium you must provide details of the Consortiums structure.
- 7.31 Bidders will be expected to comply with the Freedom of Information Act 2000 or your Bid will be rejected.
- 7.32 Bidders should note the Government's transparency agenda requires your Bid and any Contract entered into to be published on a designated, publicly searchable web site. By submitting a response to this ITQ Bidders are agreeing that their Bid and Contract may be made public
- 7.33 Your bid will be valid for 60 days or your Bid will be rejected.
- 7.34 Bidders may only amend the contract terms during the clarification period only, only if you can demonstrate there is a legal or statutory reason why you cannot accept them. If you request changes to the Contract terms without such grounds and the Contracting Authority fail to accept your legal or statutory reason is reasonably justified we may reject your Bid.
- 7.35 We will let you know the outcome of your Bid evaluation and where requested will provide a written debrief of the relative strengths and weaknesses of your Bid.
- 7.36 If you fail mandatory pass / fail criteria we will reject your Bid.
- 7.37 Bidders are required to use IE8, IE9, Chrome or Firefox in order to access the functionality of the Emptoris e-sourcing tool.
- 7.38 Bidders should note that if they are successful with their proposal the Contracting Authority reserves the right to ask additional compliancy checks prior to the award of



any Contract. In the event of a Bidder failing to meet one of the compliancy checks the Contracting Authority may decline to proceed with the award of the Contract to the successful Bidder.

- 7.39 All timescales are set using a 24 hour clock and are based on British Summer Time or Greenwich Mean Time, depending on which applies at the point when Date and Time Bids shall be submitted through Emptoris.
- 7.40 All Central Government Departments and their Executive Agencies and Non Departmental Public Bodies are subject to control and reporting within Government. In particular, they report to the Cabinet Office and HM Treasury for all expenditure. Further, the Cabinet Office has a cross-Government role delivering overall Government policy on public procurement - including ensuring value for money and related aspects of good procurement practice.

For these purposes, the Contracting Authority may disclose within Government any of the Bidders documentation/information (including any that the Bidder considers to be confidential and/or commercially sensitive such as specific bid information) submitted by the Bidder to the Contracting Authority during this Procurement. The information will not be disclosed outside Government. Bidders taking part in this ITQ consent to these terms as part of the competition process.

- 7.41 The Government is introducing its new Government Security Classifications (GSC) classification scheme on the 2<sup>nd</sup> April 2014 to replace the current Government Protective Marking System (GPMS). A key aspect of this is the reduction in the number of security classifications used. All Bidders are encouraged to make themselves aware of the changes and identify any potential impacts in their Bid, as the protective marking and applicable protection of any material passed to, or generated by, you during the procurement process or pursuant to any Contract awarded to you as a result of this tender process will be subject to the new GSC . The link below to the Gov.uk website provides information on the new GSC:

<https://www.gov.uk/government/publications/government-security-classifications>

The Contracting Authority reserves the right to amend any security related term or condition of the draft contract accompanying this ITQ to reflect any changes introduced by the GSC. In particular where this ITQ is accompanied by any instructions on safeguarding classified information (e.g. a Security Aspects Letter) as a result of any changes stemming from the new GSC, whether in respect of the applicable protective marking scheme, specific protective markings given, the aspects to which any protective marking applies or otherwise. This may relate to the instructions on safeguarding classified information (e.g. a Security Aspects Letter) as they apply to the procurement as they apply to the procurement process and/or any contracts awarded to you as a result of the procurement process.

## USEFUL INFORMATION LINKS

- [Emptoris Training Guide](#)
- [Emptoris e-sourcing tool](#)
- [Contracts Finder](#)
- [Equalities Act introduction](#)
- [Bribery Act introduction](#)
- [Freedom of information Act](#)