

Request for Quotation

Nr: 3/2025/KPO

Development of artifacts and compliance audit according to DO-178C requirements implemented as part of the project: Phoenix-RTOS operating system – foundation for Distributed Multi Provider Cloud-Edge-IoT Continuum, under Call No. KPOD.05.10-IW.10-002/23 – Indirect Partners in the KPO IPCEI CIS competition, Project No. KPOD.05.10-IW.10-0006/24.

Main CPV code:

73000000-2 Research, experiments and development services and related advisory services

Warszawa
2025



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1. Ordering party

Phoenix Systems sp. z o.o.

with its registered office in Warsaw,

ul. Mangalia 2A,

02-758 Warsaw, Poland,

share capital: PLN 241,650.00,

company registered under the National Court Register (Krajowy Rejestr Sądowy - KRS)

kept by the District Court for the Capital City of Warsaw in Warsaw,

XIV Commercial Division of the National Court Register,

KRS (national court registry number): 0000417999

REGON (statistical number): 145963772

NIP (tax identification number): 1132852893

(hereinafter also referred to as the "Ordering Party")

Web page: <https://phoenix-rtos.com/>

e-mail: contact@phoenix-rtos.com

2. Procedure for awarding the contract

1. Phoenix Systems Sp. z o.o. (Ordering Party) invites you to participate in the contract award procedure for the provision of the contract work.
2. The procedure is conducted in accordance with the principle of competitiveness referred to in the guidelines of the Ministry Of Development Funds and Regional Policy of Republic of Poland regarding the eligibility of expenditures under the Europea Regional Development Fund, the European Social Fund and the Cohesion Fund for 2021-2027 https://www.funduszeuropejskie.gov.pl/media/112343/Wytyczne_dotyczace_kwalifikowalnosci_2021_2027.pdf.
3. The provisions of the Act of 11 September 2019 – Public Procurement Law (Journal of Laws of 2019, item 1320) do not apply to this procedure.
4. The subject of the procedure is co-financed with funds from the European Union.
5. The proceedings are initiated on the day the Ordering Party publishes an announcement about the proceeding in the Competition Base <https://bazakonkurencyjnosci.funduszeuropejskie.gov.pl> (hereinafter referred to as the 'BK2021 portal').
6. Inquiries and comments regarding the procedure should be submitted via the BK2021 portal within one week from the date of the publication of the announcement. Reasonable comments deemed acceptable to the Ordering Party will allow for the appropriate modification of the Request for Quotation and thus will extend the duration of the announcement by another week, only if the points raised by the Inquirer/Bidder are deemed valid and important, under conditions listed in section 10.4 of this Request for Quotation, or if an amendment to this Request for Quotation is needed for clarification or lack of specificity or detail regarding the evaluation conditions is reported. Questions in the course of the procedure will be published along with answers and commentary on the BK2021 portal.
7. Due to the prohibition of conflicts of interest, Contractors with personal or capital ties to the Ordering Party are excluded from the proceedings. Assessment of compliance with the condition will be made on the basis of the Bidder's statement, which constitutes Annex No. 2 – Declaration of No Personal or Capital Ties between the Bidder and the Ordering Party
8. The Ordering Party ensures that all Bidders interested in this call have equal access to information concerning the procurement and proceedings, that no Bidder is favoured over the others, and that the proceedings are carried out in a transparent manner.
9. The proceeding will be carried out in accordance with Polish national and European Union law and guidelines, ensuring the principles of transparency, fair competition, and equal treatment.
10. The Ordering Party prepares documents related to the procedure in Polish and English. A Bidder based outside the territory of the Republic of Poland may submit the offer, statements, and other documents in Polish or English (without the need to submit a translation into Polish), provided that official documents, including document(s) confirming the Bidder's entry into the relevant commercial or business activity register and specifying the rules of representation and persons authorized to represent the Bidder, drawn up in a language other than Polish or English, must include a translation into Polish or English. For Bidders with registered office outside the territory of the Republic of Poland, the contract award procedure may be conducted in Polish or English. Official documents must be issued by the competent judicial or administrative authority of the country where the Bidder is based.
11. Prices in the offer shall be stated in Polish Złoty (currency code 'PLN') or in Euro (currency code 'EUR'), accurate to two decimal places."

12. During offer evaluation, to ensure fair comparison, the offer price quoted in EUR, as well as other amounts quoted in EUR, will be converted into PLN by the Ordering Party using the average EUR to PLN exchange rate from the date of publication of the Request for Quotation on the BK2021 portal, taken from Table A published on the official website of the Central Bank of the Republic of Poland (Narodowy Bank Polski) (<https://nbp.pl/statystyka-i-sprawozdawczosc/kursy/archiwum-kursow-srednich-tabela-a/>).
13. The quoted price covering the entire subject of the order, on the basis of which the Ordering Party will select the best offer, is the gross price (including Value Added Tax (VAT), if applicable). Indicating the correct Value Added Tax (VAT) rate is the responsibility of the Bidder.
14. The Bidder shall calculate the price based on the Offer Form, which constitutes Annex No. 1 to the Request for Quotation.
15. In the event that, according to applicable regulations, Bidders registered outside the territory of the Republic of Poland, due to the application of the reverse charge mechanism, do not show Value Added Tax (VAT) in the offer [this applies where the selection of the offer would result in a tax liability for the Ordering Party], the respective Bidder shall not include the VAT rate in its offer, and the quoted net price is equal to the gross price. The due Value Added Tax (VAT), in the case of a foreign Bidder, will be settled by the Ordering Party according to the applicable rate. In such a situation, the Ordering Party, in accordance with the principle of equal treatment of bidders and fair competition, in order to ensure the comparability of offers (when applying the price criterion), will add the due Value Added Tax (VAT) at the applicable rate to the net price presented by the Bidder for comparison purposes. The VAT added in this way does not increase the Bidder's remuneration but serves solely for the purpose of comparison with tenders where VAT has been included. In its offer, the Bidder is obliged to inform the Ordering Party, to the best of its knowledge, that the selection of its offer will lead to the aforementioned tax liability arising for the Ordering Party. For the avoidance of doubt, in cases where the reverse charge mechanism does not apply, Bidders (including those registered outside the territory of the Republic of Poland) shall state the gross price in the tender (including Value Added Tax (VAT), if applicable).
16. Quoted prices shall include all costs associated with the execution of the subject of the order and cover all elements, items, and services necessary for its execution (lump sum/ fixed price).
17. All remuneration and prices stated in the offer include, in particular, all taxes, customs duties, excise duties, public-law fees and charges, other receivables, costs, and fees such as insurance, packaging, shipping, loading, transport, and unloading to the Ordering Party's premises in Warsaw, which shall be borne by the Bidder (such costs are not financed by the Ordering Party).
18. The terms Contractor and Bidder are used interchangeably (depending on the context).

3. Reference documents

This section provides lists of documentation, including normative references, which through reference in this Request for Quotation, constitute provisions to presented requirements..

3.1. Reference documents

ID	Name	Revision
ARMV7R	ARM Architecture Reference Manual, ARMv7-A and ARMv7-R edition (ID040418)	iC.d
REQIF	Requirements Interchange Format (ReqIF)	v1.2
DO-330	Software Tool Qualification Considerations	2011
DO-178C	Software Consideration in Airborne Systems and Equipment Certification	2011
PHOENIX-RTOS-DOC	Phoenix-RTOS ¹ Documentation	

¹ <https://phoenix-rtos.com/documentation>

4. Description of the subject of the order

The subject of the order covers:

- development of artifacts and participation in compliance audit according to DO-178C requirements of Phoenix-RTOS kernel.

Description of Phoenix-RTOS kernel is given in section 4.1. Sections 4.2 and 4.3 provide general description and list of requirements pertaining to the subject of the order and expected work to be done.

4.1. Phoenix-RTOS kernel

Phoenix-RTOS is an open-source, microkernel-based, real time operating system for Aerospace, Edge-IoT and other applications. It is based on its own microkernel which provides exceptional scalability and hence can be used either on small microcontroller equipped devices and on systems equipped with multiple processors and gigabytes of RAM. Phoenix-RTOS's architecture is designed to provide high reliability and high performance, especially in heavy context switching applications.

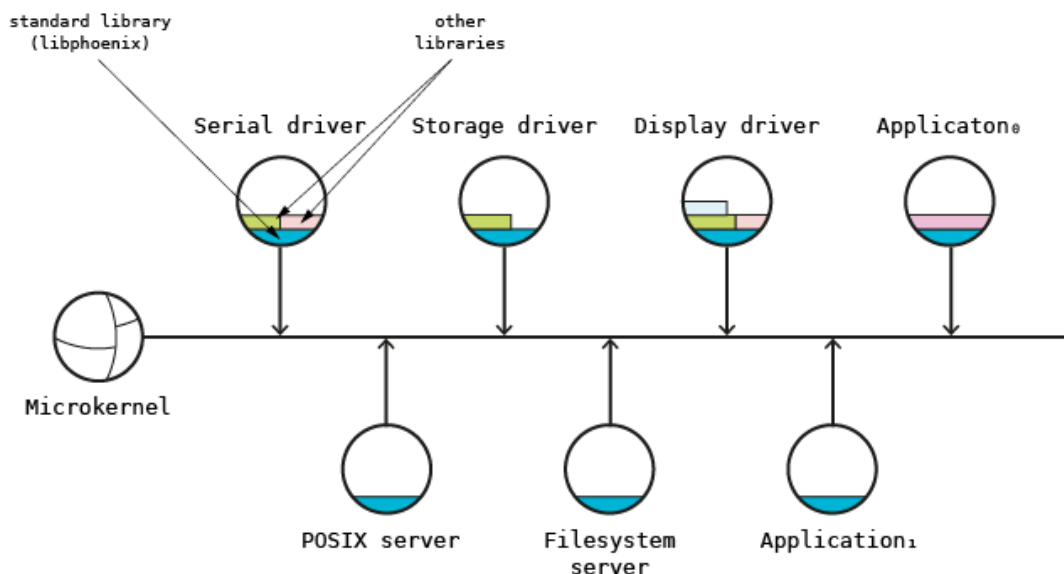


Figure 1 Phoenix-RTOS's architecture overview.

Phoenix-RTOS kernel project is hosted on Github: <https://github.com/phoenix-rtos/phoenix-rtos-kernel>

The Bidder shall use `master` branch, commit hash 9492bf6d31e9633aae5edb83cd24827c23b37df0 as the reference for estimating the efforts related to the qualification.

To provide a reference, the lines of codes reported by the cloc² and number of functions reported by ctags³ (hal for architectures other than armv7r, test directories excluded from analysis) are presented in Figure 2.

```
(.venv) → phoenix-rtos-kernel git:(master) × git rev-parse --verify HEAD
9492bf6d31e9633aae5edb83cd24827c23b37df0
(.venv) → phoenix-rtos-kernel git:(master) × cloc --not-match-d='/(test|aarch64|
armv7a|armv7m|armv8m|armv8r|gaisler|ia32|riscv64|sparcv8leon)/' .
    174 text files.
    169 unique files.
    72 files ignored.

github.com/AlDanial/cloc v 2.04  T=0.14 s (1233.1 files/s, 211465.2 lines/s)
-----
Language          files      blank      comment      code
-----
C                  52         4892        1272         15166
C/C++ Header      96         1882        1482         2850
Assembly          5          204         197          708
make              11          40          76           84
YAML               3           9           4           57
Markdown          2           12          10           38
-----
SUM:              169        7039        3041         18903
-----

(.venv) → phoenix-rtos-kernel git:(master) × ctags -R -x --c-types=f --exclude=t
est --exclude=hal/aarch64 --exclude=hal/armv7a --exclude=hal/armv7m --exclude=ha
l/armv8m --exclude=hal/armv8m --exclude=hal/armv8r --exclude=hal/gaisler --exclud
e=hal/ia32 --exclude=hal/riscv64 --exclude=hal/sparcv8leon . | wc -l
878
```

Figure 2 Phoenix-RTOS kernel repository metrics.

The evaluation presented in Figure 2 should be used as reference only. After the Contract is signed, the Ordering Party together with Contractor will select the commit to be used as the baseline for the qualification process (the co-called code freeze), thus the version of Phoenix-RTOS kernel undergoing certification might be slightly different, but the Ordering Party guarantees to it will not grow more than 500 lines in the worst case (in terms of lines of code).

² <https://github.com/AlDanial/cloc>

³ <https://github.com/universal-ctags/ctags>

4.2. DO-178C qualification data package

The DO-178C, Software Consideration in Airborne and Equipment Certification, is a widely recognized guideline and principal documentation used by aviation certification agencies, including European Union Aviation Safety Agency (EASA) and (US) Federal Aviation Administration (FAA) to approve software-based civil and military avionics systems. The DO-178C qualification package, prepared by the Contractor, will consist of the following elements and activities conducted by the Contractor as part of the requirements of the qualification process:

- Definition and implementation of Project Management and Quality Assurance processes;
- Definition of work breakdown and schedule, Software Development Plan, Test Plan and Verification Plan (Planning);
- Implementation of the aforementioned results and effects of the works;
- Definition of Technical specification including Low Level and High Level Requirements (as defined in DO-178C [DO-178C]);
- Definition of Test Cases and Analysis Cases;
- Execution of Tests and Analysis;
- Tooling qualification according to DO-330 [DO-330];
- Certification Liaison (EASA) in the scope outlined in DO-178C standard [DO-178C].

In the scope of the order, the Contractor will also provide set of tools supporting the qualification process:

- Requirements Management Tools;
- Code Coverage Tool;
- Code Static Analysis Tools, including any provision to Worst Case Execution Time Analysis, Stack Analysis and Data and Control Coupling Analysis.

Detailed description, in form of a list of requirements, of processes and deliverables the subject of order is constituted of are presented in following sections.

The Ordering Party emphasizes that in the case of the qualification of the Phoenix-RTOS microkernel, it is necessary for the Contractor to implement a version of the process based on 'reverse engineering' methods (definition in the DO-178C standard [DO-178C]), because the software undergoing qualification is already available in a stable version.

The subject of the order consists of development of artifacts and compliance audit according to DO-178C requirements of Phoenix-RTOS kernel. The qualification will be carried for DO-178C DAL C level as a minimum, with DAL B level (more stringent requirements set) listed as a goal. Offers covering certification up to DAL B are awarded extra points as described in section 10.2.2.

The subject of the order is the preparation of a qualification data package according to the DO-178C standard and the training of the Ordering Party's personnel in the processes, procedures, and other aspects related to the qualification. The Contractor will be responsible for the entire qualification process, which will be conducted by the Contractor's team with the support of the Ordering Party's personnel. The required Contractors' involvement as well as expected Ordering Party involvement for different activities is defined in section 4.6. The Contractor will lead the qualification project and hence be responsible for the final quality of the qualification data package. This approach, when Ordering Party is actively involved in the activities is selected due to two reasons:

- The Ordering Party wishes to gain expertise and thus be able to implement and maintain DO-178C compliant development flow and ensure changes and new features introduced into the Phoenix-RTOS codebase during future development of the kernel and its components are compatible with the DO-178C guidelines;
- The Ordering Party wants to ensure that the details related to Phoenix-RTOS kernel, its interfaces and implementation, are communicated to the Contractor without any obstacles.

4.3. Elements (data items) of the qualification processes

Requirements pertaining to elements/data items of the qualification process the Contractor shall execute/deliver in the scope of the project.

It should be noted that the products/results of the performed work, including documentation, generated in the scope of the qualification process shall be kept under configuration management, i.e. naming and versioning scheme implemented, change record included in the preamble. The above is not applicable to Minutes of Meeting.

Requirement's description

4.3.1. The Contractor shall produce and provide DO-178C [DO-178C] compliant technical documentation, part of DO-178C [DO-178C] software life cycle data:

- Plan for Software Aspect of Certification (PSAC);
- Software Development Plan (SDP);
- Software Verification Plan (SVP);
- Software Configuration Management Plan (SCMP);
- Software Quality Assurance Plan (SQAP);
- Software Requirement Standard;
- Software Design Standard;
- Software Requirements Data (Software High Level Requirements);
- Software Design Description (Software Low Level Requirements and Software Architecture);
- Software Verification Cases and Procedures (for both High Level and Low Level);
- Tool Qualification Plan (TQP);
- Software Verification Results (Analysis and Test Reports, Verification Control Document);
- Software Life Cycle Environment Configuration Index;
- Software Configuration Index.

4.3.2. The Contractor shall review the following documentation provided or prepared by the Ordering Party:

- Software Code Standard;
- Input to Software Requirements Data (Software High Level Requirements);
- Input Software Design Description (Software Low Level Requirements and Software Architecture);
- Input to Software Design Standard;
- Inputs to Software Verification Cases and Procedures (for both High Level and Low Level).

- 4.3.3.** The Contractor shall maintain list of identified software problems and generate Software Problem Reports.

- 4.3.4.** The Contractor shall produce and provide DO-178C [DO-178C] compliant verification evidence by the means of:

- Test and analysis artifacts,
- Code review comments and checklists;
- Software Accomplishment Summary (SAS);
- Software Quality Assurance Records;
- Trace Data;
- Parameter Data Items File;
- Software Configuration Management Records.

4.4. Schedule

Requirements pertaining to projects' schedule.

Requirement's description

- 4.4.1.** The Contractor shall complete the qualification activities within 15 months from date of contract signing, subject to point 4.7.3.

- 4.4.2.** The Contractor shall include in the submitted offer, schedule of the implementation of qualification activities/works and ensure at as a minimum it includes the following milestones covering the completion and delivery of results/reports from the following stages:

- Definitions of work plans and (high level) software requirements (Software Planning and Definition);
- Definition of software (low level) architecture (Software Design/Software Architecture);
- Software Verification;
- Compilation of Certification Data Pack.

- 4.4.3.** After completion of each identified milestone, the Contractor and Ordering Party shall organize a review and evaluate progress in the qualification efforts and processes (independently of the acceptance procedure)

- 4.4.4.** The Contractor shall be responsible for maintaining project schedule, ensuring all activities are carried out according to the proposed schedule, reporting any risk associated to tight schedule or unforeseen events.

4.5. Tools

Requirements pertaining to software, process, management and other tools.

Requirement's description

- 4.5.1.** The Contractor shall provide a comprehensive toolchain enabling and aiding the qualification process. The list of tools used in the scope of the qualification shall be established together with the Ordering Party in 30 days since the contract signing date.
-
- 4.5.2.** The toolchain provided by the Contractor shall contain, as a minimum, following tools:
- Requirements Management/Engineering;
 - Code Coverage analysis and profiling;
 - Code Static Analysis and formal verification.
-
- 4.5.3.** The Contractor shall provide the Ordering Party with licenses to any proprietary and 3rd Party tool selected for the qualification toolchain. The Contractor shall ensure:
- The license is valid for at least the time required to complete the qualification efforts (contract duration) and additional at least 6 months from the data of completion of the order;
 - The license allows use by the Ordering Party and Contractor staff.
-
- 4.5.4.** The Contractor shall perform tool qualification identification assessment and identify tools for which DO-178C requires qualification.
-
- 4.5.5.** The Contractor shall procure and provide, including license, DO-330 [DO-330] compliant Tool Qualification Pack for any proprietary/3rd Party tool used in the qualification process and identified as one requiring qualification.
-
- 4.5.6.** The Contractor shall perform DO-330 [DO-330] compliant qualification of any open-source or custom tool used in the qualification process and identified as one requiring qualification.
-
- 4.5.7.** The Requirements Management/Engineering tools provided shall:
- Support ReqIF [REQIF] format;
 - Support Tests/Analysis to Requirements coverage evaluation and reporting;
 - Support requirements tree visualization;
 - Support export to Microsoft Excel or Microsoft Word format.
-
- 4.5.8.** The Code Coverage and Static/Formal Verification tools shall be compatible with GNU Compiler Collection (GCC) version 9.5 and 14.

4.6. Work breakdown and involvement

Requirements pertaining to work breakdown and Contractor and Ordering Party involvement.

Requirement's description

- 4.6.1.** The Contractor shall be responsible and thus provide resources and conduct activities covering minimum requirements involvement listed in table below.

Activity/Artifact/Documentation	Contractor Minimum Involvement	Ordering Party Minimum Involvement
Software Project Management	Activity: 100% Review: 50%	Activity: n/a Review: 50%
Software Quality Assurance	Activity: 100% Review: 50%	Activity: n/a Review: 50%
Plan for Software Aspects of Certification (PSAC)	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Development Plan (SDP)	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Verification Plan (SVP)	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Configuration Management Plan (SCMP)	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Quality Assurance Plan (SQAP)	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Tool Qualification Plan	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Requirements Standard	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Design Standard	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Code Standard	Definition: n/a Review: 100%	Definition: 100% Review: n/a
Software Requirements Data (High-Level Requirements)	Definition: 50% Review: 50%	Definition: 25% Review: 50%
Software Design Description (Low-Level Requirements)	Definition: 50% Review: 50%	Definition: 25% Review: 50%
Software Architecture	Definition: 25% Review: 50%	Definition: 50% Review: 50%
Source Code	Definition: n/a Review: 100%	Definition: 100% Review: n/a
Executable Object Code	Definition: n/a Review: 100%	Definition: 100% Review: n/a

High-Level Software Verification Cases and Procedure and Trace Data	Definition: 50% Review: 50%	Definition: 25% Review: 50%
High-Level Software Verification – Evidence and artifacts and Trace Data	Activity: 50% Review: 50%	Activity: 25% Review: 50%
Low-Level Software Verification Cases and Procedures and Trace Data	Definition: 50% Review: 50%	Definition: 25% Review: 50%
Low-Level Software Verification – Evidence and artifacts and Trace Data	Activity: 50% Review: 50%	Activity: 25% Review: 50%
Software Static/Formal Analysis and Trace Data	Activity: 50% Review: 50%	Activity: 25% Review: 50%
Software Verification Result (Summary)	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Problem Reports	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Configuration Management Records	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Quality Assurance Records	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Configuration Index	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Life Cycle Environment Configuration Index	Definition: 100% Review: 50%	Definition: n/a Review: 50%
Software Accomplishment Summary	Definition: 100% Review: 50%	Definition: n/a Review: 50%

Comment: In the table above, percentages given in bold font mark these activities for which Contractor's minimum involvement and Ordering Party's minimum involvement do not add up to 100%. For these activities the Bidder can specify involvement higher than the minimum and be awarded extra points as outlined in section 10.2.4.

4.7. Certification Liaison and auditing

Requirements pertaining to Certification Liaison.

Requirement's description

- 4.7.1.** The Contractor shall establish a communication channel between the Ordering Party and the EASA certification authority, servers as liaison between Ordering Party and certification agency -

EASA. The Contractor shall present the established certification plan, defined in the „Plan for Software Aspects of Certification (PSAC)” document, to the EASA.

4.7.2. The Contractor shall act as the intermediary in the communication between Ordering Party and the EASA certification authority and ensure and appropriate exchange of information regarding the certification process defined in 4.7.1.

4.7.3. The Contractor shall support the Ordering Party in the auditing process performed by the independent, certified auditor selected by the Ordering Party. The audit will be conducted within the last 3 months of contract execution or within 3 months after its completion. The Contractor shall respond to auditor’s requests and comments.

4.8. Others

Others requirements pertaining to the subject of the order.

Requirement’s description

4.8.1. The Contractor shall ensure that the certification strategy is aligned with standards DO-178C DAL C or higher [DO-178C] and DO-330 [DO-330].

4.8.2. The Contractor shall establish communication channels between Ordering Party and Contractor. The communication channels shall be realized by means of dedicated mailing list and phone line.

4.8.3. The qualification process shall be performed for Phoenix RTOS kernel configured for single core operation and ARMv7R (Cortex-R5) [ARMV7R] architecture.

4.8.4. The Contractor shall organize and carry out at least one training session covering certification-related processes and tools for the Ordering Party staff, up to 10 engineers. The training shall be organized at the Ordering Party premises and within the first 3 months of the project timeframe.

5. Description of the method of providing and performing the contract

5.1. General Information

The scope of the order is implemented as a part of the project „ Phoenix-RTOS – the foundation for the Distributed Multi Provider Cloud-Edge-IoT Continuum”, project no KPOD.05.10-IW.10-0006/24.

The Project will be implemented by the Ordering Party in accordance with the Support Agreement No. KPOD.05.10-IW.10-0006/24, concluded between the National Centre for Research and Development, based in Warsaw (the Supporting Unit), and the Ordering Party on October 30, 2024 (the Grant Agreement / „Umowa o dofinansowanie”). The Grant Agreement imposes specific requirements on the Ordering Party regarding the correctness of contracts concluded as a result of procurement procedures, and thus ensuring their compliance with the requirements of the aforementioned Agreement.

The order will be supported by financial resources provided for The National Recovery and Resilience Plan (KPO), as part of the investment C3.1.1. „Cyberbezpieczeństwo – CyberPL, infrastruktura przetwarzania danych oraz optymalizacja infrastruktury służb państwowych odpowiedzialnych za bezpieczeństwo”, as a project implementing the objectives of the National Recovery Plan (KPO) and the IPCEI-CIS initiative (Important Project of Common European Interest on Next Generation Cloud Infrastructure and Services), i.e., a project of common European interest in the area of cloud data processing technologies and edge computing.

The Ordering Party is the maintainer of the Phoenix-RTOS open-source real-time operating system featuring a microkernel architecture. System documentation can be found at: <https://phoenix-rtos.com/documentation>, Phoenix-RTOS source code is available at <https://github.com/phoenix-rtos/>.

The Ordering Party utilizes the following tools for software development and project management: JIRA Software Server, Confluence Server, buildbot, Gerrit. Ordering Party also uses GitHub and its CI (Continuous Integration) features.

Due to the research and development nature of the project, constant cooperation and information exchange between the Ordering Party and the Contractor is required. The information provided by the Contractor will affect the development of the maintained software.

The use of subcontractors for the execution of the order is allowed, subject to obtaining written approval from the Ordering Party. The Ordering Party will not deny approval without providing reasons.

5.2. Communication, language of the contract, and execution of the contract.

The contract for the execution of the order may be drawn up in Polish and English. The Polish version of the contract shall prevail for determining the wording, content, and interpretation of the contract. All communication relating to the performance of the subject matter of the contract, after its signing, shall be conducted in Polish or English. All documents constituting work results and products (final and intermediate deliverables) shall be prepared and delivered to the Ordering Party in English.

The Ordering Party, as a recipient of support from the KPO (National Recovery Plan) for the execution of the contract, is obliged to communicate to the authorities information about related to the project, its outcomes, the source of the support, and the benefits it provides.

5.3. Remuneration and payment rules

Prices quoted in the contract will include all costs associated with the execution of the subject of the contract and cover all elements, items, and services necessary for the execution of the subject of the order (lump sum/fixed price).

All remuneration and prices stated in the contract include, in particular, all taxes, customs duties, excise duties, public-law fees and charges, other receivables, costs, and fees such as insurance, packaging, shipping, loading, transport, and unloading to the Ordering Party's premises in Warsaw, which shall be borne by the Contractor (such costs are not financed by the Ordering Party).

The Ordering Party will deduct withholding tax, at the applicable rates, from payments arising from the contract, if, under applicable law, the Ordering Party is obliged to deduct such tax.

The Ordering Party may request the Contractor to provide, before the payment due date, a tax residency certificate issued by the tax authorities competent for the Contractor's place of registered office.

The currency of the contract will be PLN or EUR.

The Bidder has the right to specify in the offer a payment plan for the remuneration in partial payments (installments), after the completion and acceptance of a given stage/phase of work (milestones) and after the completion and acceptance of the entire order. The proposed payment plan should at least partially correspond to the milestones specified in the schedule of the implementation of the order (point 4.4.2), provided that the period between individual payments should not be shorter than 3 months. The partial payment plan presented in the offer will be a starting point for discussion and final agreement with the Ordering Party. The Ordering Party reserves the right that in the case referred to in the first sentence of this paragraph (i.e., if installments are proposed), the final payment (part) of the remuneration will amount to no less than 30% of the total remuneration amount and will be paid after the completion and acceptance by the Ordering Party of the entire subject of the Order/Contract.

Should the Bidder not specify a schedule for partial payments in the submitted offer, the **remuneration** for the work performed under the Order/Contract will be **payable** as a single sum after the completion and acceptance of the entire Order/Contract. Payments for the subject matter of the order will be made via bank transfers, based on the final invoice issued after the signing of the final acceptance protocol for the performance of the given project's milestone. Invoice payment terms of at least 30 days are required.

5.4. Intellectual Property Rights

The Contractor is obliged to transfer to the Ordering Party all intellectual and industrial property rights, including the rights to information and methods (know-how), related to the results of the work delivered to the Ordering Party in the performance of the subject matter of the agreement, in particular, all economic copyrights to computer programs and documentation, concepts, or designs (including technical, technological, or organizational ones), in all fields of exploitation, together with the right to exercise and authorize the exercise of derivative rights (in particular, within the scope specified in Art. 50 and Art. 74(4) of the Act of 4 February 1994 on Copyright and Related Rights), the rights to use inventions, utility models, industrial designs, topographies of integrated circuits, the right to obtain a patent, protective right, or right from registration (without territorial limitations), as well as the ownership of the carriers.

The Contractor ensures that the results of the work, in particular the Author's Elements, and the delivered Products, as well as the rights to them, will be free from legal defects, and that the Ordering Party's use of the results of the Contractor's work will not violate the rights of third parties in the field of copyrights, industrial property rights or other rights.

The Contractor shall provide the Ordering Party with licenses (provided by third parties) to use the tools supporting the certification process described in the this Request for Quotation, specifically in point 4.5

5.5. Warranty

The Contractor shall grant a 24-month warranty on the performed works and effects, commencing from the date of completion of the contract performance and acceptance of the results of the work by the Ordering Party (covering defects identified during the warranty period), without exemptions to the Contractor's liability for defects under the statutory warranty for defects, should defects be identified within the aforementioned period.

The Ordering Party may exercise rights arising from the non-conformity of the procured service with the contract (statutory warranty for defects) independently of the rights arising from the contractual warranty.

The terms of the warranty shall entitle the Ordering Party, in particular, to demand the removal of defects by repair or replacement, or to withdraw from the contract in the event of failure to remove, or inability of removing, the defects within a specified period.

5.6. Contractual penalties

The contract will include contractual penalties for non-performance or improper performance of the contract by the Contractor.

5.7. Control and Audit

The Contractor, if necessary, shall support the Ordering Party during inspections and audits conducted by authorized institutions, particularly the National Centre for Research and Development (Narodowe Centrum Badań i Rozwoju), in accordance with the requirements of the Funding Agreement.

The Contractor shall be obliged, if necessary, to submit to inspections and audits conducted by authorized institutions, in particular the National Centre for Research and Development, for the purpose of assessing the proper use of the financial support granted to the Ordering Party for the performance of the subject of the contract and evaluating the eligibility of expenditures. In particular, the Contractor shall: make available documentation related to the performance of the contract, provide access to premises and sites where the contract is being performed, provide oral and written explanations regarding the execution of the contract, and cooperate with the Ordering Party in the aforementioned scope.

5.8. Governing Law

This contract shall be governed by and construed in accordance with the laws of Poland. Any disputes shall be settled by the courts having jurisdiction for the Ordering Party's registered office in Warsaw.

5.9. Security

The Contractor shall be required to hold valid civil liability insurance related to its business activities concerning the subject of the contract, covering the entire term of the agreement, including the period for remedying defects.

6. Order commence and completion date

The Contractor will be ready to commence realization of the project no later than 30 days from the date of contract signing.

The Contractor will complete the order within 15 months from the from the date of contract signing as specified in section 4.4 of this Request for Quotation.

7. Conditions for participation in the procedure

In order to ensure probity, transparency, and fair competition, the Ordering Party defines the following conditions for participation in the procedure:

7.1. Legal/entity status of the Contractor

7.1.1. Information and formalities necessary for the assessment of compliance

The Contractor participating in the procedure must:

- meet conditions for participating in the proceedings, i.e. submit a completed Offer Form with all required Annexes and using the manners required by this Request for Quotation;
- meet the conditions for participation in the procedure concerning technical capabilities, economic and financial capabilities, and personnel capabilities, as specified in sections 7.1.2, 7.1.3 and 7.1.4;
- has not been excluded by the Ordering Party from participation in the procedure on the grounds specified in Annex No. 6.

7.1.2. Technical capabilities

To fulfill the condition for participation in the procedure, the Contractor must demonstrate:

- independently completed at least 2 (two) projects concerning software qualification to the DO-178C standard at DAL C or higher, or participated in their execution as a subcontractor..

7.1.3. Economic and Financial Capabilities

The Contractor participating in the procedure must:

- possesses financial resources or credit capacity of at least 500,000 PLN (or equivalent in EURO);
- holds civil liability insurance covering their business activity related to the subject of the order, with a minimum coverage of 4,000,000 PLN (or equivalent in EURO),
- reports, in the last financial year (or, if the period of business activity is shorter, during that period), a turnover of at least 1 500,000 PLN (or equivalent in EURO).

In order to confirm that the Contractor meets the conditions for participation in the proceedings listed in section 7.1.3, the following must be submitted:

- information from the bank or credit union where the Contractor holds an account, confirming the amount of financial resources held or the Contractor's credit capacity, issued not earlier than 3 months before the deadline for submission of offers;

- a copy of the insurance document (policy) with proof of payment, or in the absence thereof, another equivalent document confirming that the Contractor is insured against civil liability within the scope of their business activity related to the subject of the order;
- a financial statement containing income statement prepared in form of profit and loss summary, or, for Contractors not obliged to prepare financial report, another document specifying turnover, liabilities, and receivables – for the last financial year, or if the period of business activity is shorter, for that period.

7.1.4. Professional Capabilities

In order to demonstrate the Bidder meets the conditions for participation in the procedure, the Bidder is required to demonstrate that for the purposes of implementing the contract, it will have at its disposal a minimum of 3 persons with appropriate competencies, i.e., scientific and technical personnel, who will enable the proper execution of the contract activities, including:

- (Scientific personnel) at least 1 person holding an academic degree of at least a PhD in engineering and technical sciences, exact sciences, or natural sciences;
- (Technical personnel) at least 2 persons holding a professional title of at least Engineer in the field of engineering and technical sciences or exact sciences, and possessing experience regarding: software qualification to DO-178C, or similar standards;
- including at least one person holding a role/recognized as EASA SW CVE or FAA SW TSOS/EUM (from active or past projects)

8. Date, place and method of submitting offers

8.1. Information related to document's submission

Proposals for the implementation of the subject of the order (accompanied by any Annexes and documents mandated by this Request for Quotation, including the completed Offer Form, as well as any applicable powers of attorney) should be submitted in electronic form via the BK2021 portal, subject to section 8.2 below. The Offer Form and Annexes must be submitted in Polish or English.

The complete offer must be submitted by 9 June 2025.

If the number or size of the annexes exceeds the technical capabilities of the BK2021 portal, the Ordering Party will inform affected Bidder to cease communication via BK2021 and submit the relevant documentation via e-mail to the address: 8ra@phoenix-rtos.com

8.2. Additional information

The procurement procedure is conducted electronically via the BK2021 platform. The procedure, including all correspondence, is carried out in the Polish language. In the case of a Bidders registered outside the territory of the Republic of Poland, the contract award procedure may be conducted in Polish or English.

The offer shall remain binding for a period of at least 90 days from the final date for submission of offers, as specified in the Request for Quotation.

The offer must be prepared using Annex No. 1 – Offer Form, in the Polish language. All declarations, documents, and attachments shall be submitted in Polish. A Bidder registered outside the territory of the Republic of Poland may submit the offer, statements, and other documents in Polish or English (without the need to submit a translation into Polish), subject to point 2 clause 10.

The offer should also include annexes listed in section 11 of this Request for Quotation.

Along with the offer, the Bidder shall submit the documents and declarations listed in the Request for Quotation, as well as a document (or documents) confirming the Bidder's entry in the relevant register (e.g. an extract equivalent to the current entry in the Register of Entrepreneurs of the National Court Register), specifying the rules of representation and the persons authorized to represent the Bidder (as of a date not earlier than 30 days before the offer submission date). Official documents must be issued by the competent judicial or administrative authority of the country where the Bidder is registered.

All offer documents issued (signed) by the Contractor, including Annexes No. 1–6, as well as the power of attorney, if the Contractor is represented by an attorney-in-fact, should be in electronic form and should bear the Contractor's qualified electronic signature.

Qualified electronic signature, within the meaning of Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC (eIDAS Regulation), means an advanced electronic signature that is created by a qualified electronic signature creation device and which is based on a qualified certificate for electronic signatures.

A qualified electronic signature, in accordance with the eIDAS Regulation, shall have the equivalent legal effect of a handwritten signature.

The required qualified electronic signatures must allow for standard verification by the Ordering Party (the electronic signature certificate must, in particular, enable the signatory's identity to be established). The requirement for a qualified electronic signature is justified in order to ensure the authenticity and integrity of the documents, given the Ordering Party's use of public funds.

Other documents/copies of documents, including documents originating from third parties (e.g., references), may be submitted by the Bidder via the BK2021 portal in electronic form as electronic copies (scans), and should bear the handwritten signature of an authorized person, which in this case will signify confirmation that the electronic document conforms to the original.

9. Means of communication between Bidders and the Ordering Party

To ensure transparency of the procedure and efficient communication, all information and clarifications regarding this procurement shall be communicated in accordance with the following rules:

- Inquiries and comments regarding the procedure and subject of the tender should be submitted via the BK2021 portal,
- information is provided on weekdays from 9:00 a.m. to 5:00 p.m.

10. Criteria and offers' evaluation

The Ordering Party will select the most advantageous offer based on the formal and point-based criteria set out in this Request for Quotation.

10.1. Formal criteria

The Bidder must meet following formal criteria:

- the offer, consisting of Offer Form and additional documents, declarations, and annexes required in this Request for Quotation, was submitted within the deadline;
- the offer meets all the requirements of the minimum scope/involvement constituting the subject of the order, and the subject and content of the offer are compliant with the subject and conditions of this Request for Quotation.

During the examination and evaluation of submitted offers, the Ordering Party may request clarifications from Bidders concerning the content of the submitted offers (including documents). In the event that deficiencies, errors, inaccuracies, or doubts are found in the offer (including in the documents), or deficiencies regarding the documents submitted by the Bidder, the Bidder will be notified of the possibility to supplement the deficiencies within a specified deadline, under penalty of rejection of the offer.

Regarding the minimum requirements specified in the Offer Form concerning the Bidder's technical (clause 7.1.2) and professional capabilities (clause 7.1.4) the Bidder shall demonstrate, as minimum by declaration, the fulfilment of conditions listed in section 7.

10.2. Point-based criteria

The selection of the offer will be made based on the requirements described in the Request for Quotation and the scoring system established under the evaluation criteria. The maximum number of points an offer may receive is 100.

Evaluation criterion (name)		Weight	Calculation
10.2.1.	Price of the offer	Maximum of 60 points	$W_c = \frac{W_{cn}}{W_{cb}} * 60$
10.2.2.	DO-178C Development Assurance Level (DAL) of the offer	Maximum of 10 points	DAL C – 0 points DAL B/DAL A – 10 points

10.2.3.	Number of documented and demonstrated DO-178C qualification related projects	Maximum of 10 points	<3 – 0 points 3-5 – 5 points >5 – 10 points
10.2.4.	Involvement above the minimum specified in requirement 4.6.1	Maximum of 20 points	$I_c = \frac{I_{cn}}{I_{cb}} * 20$

Where:

Wc = number of points awarded for the offer under evaluation (price criterion)

Wcn = the lowest net price offered among the offers submitted (price criterion)

Wcb = the net price of the offer under evaluation (price criterion)

Ic = number of points awarded for the offer under evaluation (involvement criterion)

Icn = the highest involvement above the required minimum offered among the offers submitted (involvement criterion)

Icb = the involvement of the offer under evaluation (involvement criterion)

Offers submitted in EURO will be converted to PLN with conversion as defined in section 2 clause 12.

The involvement above the required minimum will be calculated as follows:

- For following items listed in requirement 4.6.1:
 - Software Requirements Data (High-Level Requirements)
 - Software Design Description (Low-Level Requirements)
 - Software Architecture
 - High-Level Software Verification Cases and Procedure and Trace Data
 - High-Level Software Verification – Evidence and artifacts and Trace Data
 - Low-Level Software Verification Cases and Procedures and Trace Data
 - Low-Level Software Verification – Evidence and artifacts and Trace Data
 - Software Static/Formal Analysis and Trace Data
- The additional involvement is the involvement above the minimum listed in column Contractor Minimum Involvement, up to the upper limit/threshold to be calculated as 100% - Ordering Party Minimum Involvement. For each listed item the maximum additional involvement is 25%, which gives maximum of 200% as a sum of additional involvement (25% in up to 8 items).

10.3. Offers evaluation

Submitted offers will be reviewed by the Ordering Party, and the tender procedure will be concluded by June 30, 2025.r.

Final scores will be rounded to 2 decimal places.

The Ordering Party will award the contract to the Bidder whose offer meets all the requirements specified in this Request for Quotation and has been evaluated as the most advantageous based on the presented evaluation criteria, i.e., the one awarded the highest number of points.

Planned date for signing of the contract for the implementation of the order – by July 31, 2025.

All conditions for the implementation will be confirmed in the contract signed with the Contractor.

The contract will be concluded upon the signing by the Ordering Party and the selected Contractor of the document which constitutes the content of the contract. The contract is not concluded at the moment the selected Contractor receives the Ordering Party's statement of acceptance of the offer. Notification to the selected Contractor of the acceptance of the offer by the Ordering Party also does not lead to the conclusion of a preliminary agreement.

In case the price of submitted offer is way, on a suspicious level, below the estimated market value of the subject of the order, the Ordering Party will request explanations from the Bidder, including the submission of evidence concerning the elements of the offer influencing the price.

In case two or more offers are awarded the same number of points, the decisive criterion will be: **"Number of documented and demonstrated DO-178C qualification related projects"**.

The Ordering Party will reject an offer if its content does not comply with the list or presented in this Request for Quotation (also in case it was not submitted within the deadline), its submission constitutes an act of unfair competition, it contains an abnormally low price in relation to the subject of the order, it contains errors in the price calculation, it is invalid based on separate regulations, or if the Bidder is excluded from the procedure.

The Ordering Party reserves the right to exclude a Bidder at any stage of the procedure for reasons entitling the Ordering Party to exclude the Bidder from the contract award proceedings conducted by the Ordering Party, as specified in Annex No. 6 to this Request of Quotation.

The Ordering Party reserves the right to cancel the proceedings at any stage without incurring any legal or financial consequences, and the right to close the proceedings without selecting any offer, for valid reasons, in particular, if a significant change in circumstances occurs meaning that conducting the procedure or performing the contract is no longer in the Ordering Party's interest, as well as for reasons (applied accordingly) specified in point 10.4. of this Request for Quotation.

The Ordering Party will promptly inform the Bidders who applied for the award of the contract (submitted offers) about the exclusion of Bidders(s), the rejection of offer(s), the cancellation of the procedure, the selection of the most advantageous offer, and the date for signing the contract for the performance of the order.

10.4. Conditions for Amending the Request for Quotation/Contract

The Ordering Party reserves the right to introduce changes (including extensions of deadlines) to the conditions of the Request for Quotation or during the negotiation and signing of the contract for the performance of the order with the selected Contractor, or to request amendments to the signed contract for the performance of the order, including negotiations on changes to remuneration, payment terms, and deadlines for performance, due to the following reasons:

- changes in regulations, rules, including guidelines and manuals concerning the eligibility of expenditures, or other applicable guidelines, as well as their interpretations or new recommendations issued by institutions responsible for supervising the implementation of the contract for the performance of the order, which may affect the manner of contract performance or require adjustments to the contract provisions;
- changes in generally applicable laws, in particular changes in value-added tax (VAT) rates applicable to the subject of the contract, as well as changes in EU legislation, including regulations issued by EU institutions and decisions of those institutions, which require adjustments to the contract provisions to ensure compliance with the new regulations;
- the occurrence of circumstances beyond the control of the parties or those that could not have been foreseen at the time of signing the contract for the performance of the order, in particular the emergence of new information or facts that prevent the contract from being performed in its original form or within the original timeframe, provided that such changes do not affect the objectives and outcomes of the project. This applies in particular to situations where a contract amendment is necessary to safeguard the project's objectives without altering the nature of the contract;
- in the event of termination or amendment of the Grant/Financial Agreement concluded between the Ordering Party and the Supporting Institution, in particular regarding changes to the method of settlement of the Agreement or the payment procedures in favour of the Ordering Party;
- In the event that it becomes necessary to adjust the contract conditions to the progress of research and development (R&D) work;
- In the event that, during the procurement procedure, circumstances arise – including changes in the Ordering Party's needs – that justify modifying the scope or deadline for the performance of the subject of the contract to ensure proper project implementation;
- In the event that, during project implementation, circumstances arise that justify modifying the deadline for the performance of the subject of the contract to ensure proper project implementation;
- In any case where the change is beneficial to the Ordering Party (e.g. resulting in a reduction of the contract execution costs or shortening of the completion time);
- The need to change design, technical, technological, or material solutions, in a situation where applying the planned solutions would risk non-performance or defective performance of the project, or as a result of technical progress, the need to adapt to new quality standards, or the improved efficiency of a solution. The change may involve, for example, applying newer, more effective solutions that offer benefits in terms of cost, execution time, or quality of the order/contract;
- In the event of force majeure occurrences, including but not limited to: delays caused by pandemics, epidemics, war, acts of war, natural disasters, strikes, and other events beyond the control of the contracting parties, which could neither have been foreseen nor avoided.

Any amendments to the concluded contract shall be valid only if made in writing.

Introduction of any changes to the contract for the execution of the order after its conclusion is possible exclusively with the consent of both parties and, depending on the requirements, upon obtaining the consent of the Supporting Institution.

11. Annexes

In order to ensure the completeness of the offer and compliance with the formal requirements of this procedure, the following annexes must be attached to the offer. Each document should be prepared in accordance with the guidelines set out in the Terms of Reference.

The following is a list of the required annexes:

Annex No. 1 – Offer Form

Annex No. 2 – Declaration of No Personal or Capital Ties between the Bidder and the Ordering Party

Annex No. 3 – Bidder's Declaration of Full Capability to Carry Out the Offer Scope of Work

Annex No. 4 – Information Clause for Bidders

Annex No. 5 – Sanctions Clause

Annex No. 6 – Declaration of No Grounds for Exclusion

Phoenix Systems

developer of Phoenix-RTOS

Phoenix Systems



Phoenix Systems Sp. z o. o.

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