

Výzkumný a zkušební letecký ústav, a.s.**Beranových 130, 199 00 Praha - Letňany**

OR : Městský soud v Praze, oddíl B, vložka 446

IČO: 00010669 DIČ: CZ00010669

Bankovní spojení : [REDACTED]

OBJEDNÁVKA

Číslo : OV4220717/2

Zakázka : VSMSW1

Středisko : 4000

Počet listů : 2

Advanced Engineering, s.r.o.**Na ostrohu 2405/16****160 00 Praha 6, Dejvice**

Vyřizuje / linka:

Praha - Letňany**09.12.2022**

P.č.	Množství / M.j.	Specifikace	Cena bez DPH
1	1,00 -	<p>Objednáváme u vás: Altair Units: AU-ME-MNT Altair Units - TSSM, Mechanical Engineer bundle Technical Support and Software Maintenance for one year Období: 1.1.2023 - 31.12.2023 Dle nabídky č. 22.103/HP</p> <p>Fakturace v lednu 2023!!</p> <p>Termín dodání : 01.01.2023 Platební podmínky : bankovním převodem Dodací podmínky : dodat na adresu firmy /7.00 - 13.00 h/ Na daňovém dokladu (dodacím listu) uvádějte prosím č. naší objednávky. Žádáme Vás o potvrzení přijaté objednávky včetně termínu dodání a ceny. V případě vystavení zálohové faktury Vás žádáme o zaslání daňového dokladu o přijaté platbě (dle zákona o DPH č.235/2004 Sb., §26).</p> <p>FAKTURY PROSÍM ZASÍLEJTE EMAILEM NA: [REDACTED]</p> <p>VZLÚ je povinným subjektem dle zákona č. 340/2015 Sb. o registru smluv. Smlouva/objednávka, mimo části podléhající obchodnímu tajemství, bude v souladu s tímto zákonem uveřejněna v registru smluv. Smlouva/objednávka nabývá platnosti dnem podpisu oběma smluvními stranami a účinnosti dnem uveřejnění v registru smluv. Objednatel se zavazuje tuto smlouvu/objednávku bez zbytečného odkladu po jejím podpisu oběma smluvními stranami, zaslat správci registru smluv k uveřejnění.</p>	[REDACTED]
Razítko a po	[REDACTED]	Razítko a podpis dodavatele :	[REDACTED]

Telefon [REDACTED]

Fax: [REDACTED]

Order Form – Altair Engineering, Inc and its Authorized Resellers

Licensee acknowledges and agrees that access to and use of the licensed Product(s) procured hereunder shall be subject to and governed by the respective Altair Engineering Inc. standard terms and conditions accepted at the time of access to or installation of the Product(s) identified in Section 2 below ("Clickwrap Agreement"). In the event that Licensee has a current and valid negotiated license agreement on file with Altair Engineering Inc., or an authorized reseller ("Master Agreement"), then such Master Agreement shall take precedence over the Clickwrap Agreement.

1. Licensee Information

Licensee Name: Výzkumný a zkušební letecký ústav, a.s.

Division: _____

Address: Beranových 130
199 05, Praha, Czech Republic

2. License Server Information

Server Site Location	APA Enabled (Y/N)	Global Zone*	License Type**	Start Date	End Date	License Server HostID	Product Item Code	Qty	Price
Czech Republic	N	EMEA	MNT	1.1.2023	31.12.2023		AU-ME-STD-MNT	60	
								Currency: EUR	Total:

*Global Zones: **AMER**=Americas, **EMEA**=Europe, **APAC**=Asia/Pacific

License Types: **AN-Annual Lease, **PDUP**-Paidup, **MNT**-Maintenance, **PDUPMNT**-Paidup and Maintenance

Licensee warrants that the Product(s) procured hereunder shall not be used for the design, development, production or use of nuclear, chemical or biological weapons or missiles without first obtaining the necessary export licenses, if any, and/or complying with all US export regulations.

This Order Form is effective as of the date of last signature below.

Altair Engineering, Inc or its authorized reseller
"Licensor"

Signature: _____
 Print Name: _____
 Title: _____
 Date: _____

Výzkumný a zkušební letecký ústav, a.s.
"Licensee"

Signature: _____
 Print Name: _____
 Title: _____
 Date: _____



ADVANCED ENGINEERING s.r.o.



Advanced Engineering s.r.o., Na Ostrohu 16, 160 00 Praha 6

T: +420 604 212 242, E: [REDACTED]

W: www.advanced-eng.cz

Číslo nabídky: 22.103/HP

Datum: 1. prosince 2022

[REDACTED]
VZLU a. s.

Beranových 130

199 05 Praha – Letňany

E-mail: [REDACTED]

Nabídka Altair HyperWorks

Vážený pane [REDACTED]

děkujeme Vám za Vaši poptávku. Na základě předchozích jednání Vám předkládáme nabídku zajištění **softwarové údržby** Vašich licencí *Altair HyperWorks* na následující rok.

Společnost *Altair Engineering Inc.* poskytuje licence k softwarovým nástrojům prostřednictvím licenčních jednotek *Altair Units (AU)*. Pro případ Vaší poptávky, tedy zajištění softwarové údržby pro rozsah stávající trvalé licence, potřebujete opět maintenance v rozsahu **60 jednotek (Altair Units, AU)** v rámci profilu/balíku **Mechanical Engineer** (tento profil reprezentuje klasické *HyperWorks*). Nadále budete mít přístup i k dalším nástrojům *HyperWorks*, jako například *SimLab*, *Radioss*, *Optistruct (FEA i Optimization)*, *AcuSolve*, *Flux* či *HyperStudy*.

Altair nabízí širokou paletu CAE softwarových řešení, která lze využívat velmi flexibilně. Obsahuje produkty pro modelování, analýzu, optimalizaci, vizualizaci a automatizaci procesů v oblastech strukturální mechaniky, multi-body simulací, multi-fyziky nebo simulací výrobních procesů. S licenčním konceptem firmy Altair získáte největší možnou flexibilitu při využívání tohoto softwaru – (vizte přílohu *The Altair Licensing Concept*).

Více informací k licenčnímu systému naleznete na webových stránkách Altair (www.altair.com/altair-units) a v dokumentaci na portálu Altair One (www.altairone.com), v dokumentu *Altair Units 2022 – Licensing Guide*.

V tabulce níže jsou uvedeny ceny za používání softwarových produktů firmy Altair.

CENOVÁ NABÍDKA SOFTWARE

Tato cenová nabídka představuje poskytnutí softwarové údržby pro Váš objem licenčních jednotek pořízených jako trvalá licence.

Poz./Pos.	Množ./Qty	Popis/Description	Cena/Price
001	60	Altair Units: AU-ME-MNT Altair Units - TSSM, Mechanical Engineer bundle Technical Support and Software Maintenance for one year Období/Duration: 1.1.2023-31.12.2023	
Celkem (bez DPH):			
DPH (21%):			
Celkem (s DPH):			

Cena softwaru (roční pronájem) zahrnuje podporu při instalaci, kompletní dokumentaci, telefonickou podporu a bezplatný update během licenční doby.

Platební podmínky:

Splatnost faktury 14 dní.

Další podmínky:

Tato cenová nabídka je platná do 15. prosince 2022.

Rádi Vám v případě potřeby poskytneme další doplňující informace.

S přátelským pozdravem,

V případě, že přijímáte tuto nabídku, vyplňte prosím údaje v rámečku dole a pošlete nám oskenovanou kopii spolu s podpisem oprávněné osoby na naši e-mailovou adresu.

Přijímáme Vaši nabídku a tímto objednáváme pozice _____ Vaší nabídky č. 22.103/HP.

Datum: _____, Jméno: _____, Podpis: _____

The Altair Licensing Concept

More flexibility with Altair Units

With Altair's flexible unit-based licensing system organizations can pool and centralize their global software investment maximizing utilization and availability throughout the global enterprise delivering far greater value than traditional licensing systems. Instead of licensing individual Altair products for each user, the Altair licensing model allows companies purchase a pool of Altair Units (AU) for both individual users as well as for engineering departments. When a user launches a software application, the required number of units to run the application is automatically checked out from the local or departmental pool of AU. These AU are automatically returned to the pool when the application is closed. This licensing model also allows users to run multiple applications simultaneously without checking out more AU. With the exception of stacked applications and an application which requires more AU than any active application, no additional AU will be drawn from the pool. This is a key differentiator to most token based licensing models.

On the following pages you will find some more details on the Altair Alliance Enabled Partner Applications, on our solvers OptiStruct, RADIOSS and AcuSolve, and a short product overview. The required number of AU for the most common HyperWorks products is listed below.

Altair Units (AU)		
HyperViewPlayer	0	
PBS Professional	0.03	per CPU-
HyperGraph 2D/3D	6	
Evolve	10	
AcuConsole	21	
HyperMesh	21	
HyperCrash	21	
HyperView	21	
AcuFieldView	21	
MotionView	21	
Manufacturing Solutions	30	
Inspire	15	
SimLab	21	
AcuSolve	30	
Otistruct (Analysis)	30	
RADIOSS	30	
HyperForm	30	
MotionSolve	30	
HyperStudy	25	
HyperXtrude	50	
Otistruct (Optimization)	50	
Compose	10	
Activate	15	
Feko	30	
Flux	30	
SimSolid	30	
Multiscale Designer	25	
Tailored Solutions	35+	
Virtual Wind Tunnel	21	
Partner programs	45+ see p.4	

^(*) depending on CPU-cores per Run (see Solvers Unit Chart)
^(**) solver stacking rules apply

AU Usage Examples:

Example A: There are 50 AU on your server.

One user opens HyperMesh (21 AU). Those are drawn from the server – there are 29 AU left. The same user also opens HyperGraph (6 AU) at the same time. There are still 29 AU available on the server - only the highest AU drawing application draws AU (in this case HyperMesh). The user closes both applications. There are again 50 AU on the server.

Example B^(*): There are 60 AU on your server.

During the day, two users simultaneously use HyperMesh to build FE-models ($2 \times 21 = 42$ AU), perform analyses with OptiStruct ($2 \times 30 = 60$ AU), post-process the results with HyperView ($2 \times 21 = 42$ AU). At the end of the day, users close the open HyperWorks applications and there are again 60 AU left on the server. One of the users can now run a topology optimization overnight using OptiStruct (50 AU).

Example C: There are 60 AU on your server.

One user opens MotionView (21 AU) to build a MBD model. Starting MotionSolve (30 AU) on the same machine draws only additional $30 - 21 = 9$ AU from the server. Starting HyperMesh (21 AU) on the same machine and running a topology optimization using OptiStruct (50 AU) draws only additional $60 - 30 = 30$ AU from the server. 50 AU are in use.

Adapt HyperWorks to your needs

All Altair software products can be adapted to your specific needs and integrated in your business processes. Through customization of HyperWorks you can achieve even more efficiency in your engineering projects. Our support and develop. projects guarantee the best possible benefit in the development of your solutions.

Discover our products and customizing solutions

The best way to discover and learn how to use our products efficiently is to attend one of our many product training courses. Regular courses are available for both the novice and experienced user and are taught by our product specialists. Training dates and course descriptions can be found by visiting www.altairhyperworks.de/trainings. In addition, we can provide custom training courses onsite your location or at our offices.

HyperWorks Solvers Unit Draw Chart

In-App Licensing

For multiple CPU-core jobs, the number of base AUs drawn by RADIOSS, AcuSolve and OptiStruct depends on the number of machine CPU-cores used per run as described in the following table. This base number may be altered depending on how many simultaneous copies of these solvers are running. See below regarding the Decay Function.

HyperWorks Solvers	AU	AU
	OptiStruct FEA, RADIOSS, MotionSolve, AcuSolve, Flux, FEKO	OptiStruct Optimization, EDEM Solver
<i>Number of CPU-cores per Run</i>		
1 - 4	30	50
5 - 8	35	55
9 - 16	40	60
17 - 32	50	70
33 - 64	60	80
65 - 128	70	90
129 - 256	80	100
257 - 512	90	110
513 - 1024	100	120
Each duplication	+10	+10

A decay function is applied across all Radioss, AcuSolve and OptiStruct licenses running simultaneously off the same license server. The decay function is a multiplier on the unit amount drawn for a job. Once a job has finished, the next job will backfill into the vacated slot. Hence, once a job has started, the checked-out unit amount for that job will not change.

Job Number	Decay Factor
1	1.0
2 - 10	0.9
11 - 20	0.8
21 - 30	0.7
31 - 40	0.6
41 - 50	0.5
50+	0.4

Solvers level or stack AUs according to the following rules:

- At the first invoke of a Solver application, the AUs will level against HyperWorks applications already running on the same machine.
- Similarly, at the first invoke of a different Solver application, the AUs still level.
- The AUs stack when starting the second and so forth invoke of the same batch application.
- When the leveled job finishes, the next invoke levels again.

Example: If the user launches HyperMesh first (21 AU), and then launches RADIOSS (30 AU), 30 AU will be drawn. If the same user on the same machine adds an OptiStruct job (50 AU), the total units drawn is 50 AU. If the user now adds a second OptiStruct job, the total units drawn will be increased to 95 AU ($50 + 0.9 \times 50$ AU).

Solver HPC Licensing

The Solver HPC license draws units on a per-CPU core basis. The unit draw is determined by the total number of cores for a solver according to a lookup table.

HPC Licensing applies in all situations where a solver is not started from inside an Altair GUI application and a SolverHPC license feature is present.

The following table applies to the license features: AcuSolve, AltairManufacturingSolver, EDEMSolver, FekoSolver (including WinPropSolver), FluxSolver, MotionSolve, OptiStructFEA, and Radioss. If OptiStruct runs an optimization (OptiStruct license feature), the draw per core is multiplied by 1.5 for a given job. Each license feature follows its own core count. This unit draw stacks.

GPU acceleration is implemented for AcuSolve, EDEM, Feko, and OptiStruct. For AcuSolve, Feko, and OptiStruct, one GPU card is counted as four additional CPU-cores; for EDEM one GPU card is counted as 16 CPU cores.

Number of Cores	Draw per Core	Cumulative Draw Range*
1-4		30,00
5-36	1,60	31,60 - 81,20
37-70	0,80	82,00 - 108,40
71-200	0,60	109,00 - 186,40
201-400	0,40	186,80 - 266,40
401-800	0,30	266,70 - 384,40
801-1600	0,20	386,60 - 546,40
1601-3200	0,15	546,55 - 786,40
3201-6400	0,10	786,50 - 1106,40
6401-10000	0,05	1106,45 - 1286,40
>10000 (20000)	0,04	>1286,40 (1686,40)

*There may be slight variations due to numerical round-off.

For example, if three simultaneous Radioss jobs are running requiring a total of 48 CPU cores, the total unit draw will be 90.8 (= 30 + 32x1.6 + 12x0.8).

In addition to the unit draw of solvers during runtime, AcuPrep, Feko, OptiStruct, and Radioss Starter check for the existence of a license during initial check and preparation runs. These license checks do not draw any units.

Leveling of interactive applications is not affected. For example, a user on a workstation uses HyperMesh, HyperView (21 AUs leveled) plus two 4-core OptiStructFEA (36 AUs), a (maximum) total of 57 AUs is drawn.

Licensing of GPU-based CFD Solvers

The CFD solvers nanoFluidX and ultraFluidX are a direct GPU implementation and draw Altair Units per job based on the number of GPUs.

GPU	nanoFluidX	ultraFluidX
1	25	50
2	50	100
3-4	100	150
5-8	150	200
9-16	200	250
Each duplication	+50	+50

Altair HyperWorks product overview

The Platform for Innovation™

Finite Element Meshing and Modeling

HyperMesh

High-performance finite element pre-processor to prepare largest models for an analysis run for various disciplines.

HyperCrash

Finite element pre-processor for automotive crash and safety analysis.

BatchMesher

Geometry cleanup and auto-meshing in batch mode for given CAD files.

AcuConsole

Powerful, yet easy to use GUI-Based Computational Fluid Dynamics (CFD) pre-processor for AcuSolve.

SimLab

Process oriented, feature based finite element modeling environment to capture and automate simulation processes.

Multi-body Dynamics Modeling

MotionView

Multi-body dynamics pre- and post-processor.

Solvers, Study and Optimization

OptiStruct

Structural analysis and design optimization software using finite elements and multi-body dynamics for linear and non-linear structural problems

RADIOSS

Finite element solver (explicit) for linear and non-linear problems under dynamic loadings like crash, impact, blast and stamping simulation.

SimSolid

CAE solution for linear and non-linear problems which eliminates geometry simplification and meshing – enabling the analysis of fully-featured CAD assemblies in minutes.

AcuSolve

General, all-purpose finite element computational fluid dynamics (CFD) solver.

nanoFluidX

Simulation tool for fluid flow analysis based on particle hydrodynamics (SPH) method, which predicts fluid flow within complex geometry of mechanical structure and under the influence of moving parts. A typical example is the transmission oil lubrication simulation.

ultraFluidX

Simulation tool for ultra-fast prediction of aerodynamic properties of cars and trucks as well as evaluation of buildings from the perspective of wind load. Tool for analysis of external aerodynamics based on Lattice Boltzmann method.

EDEM

Simulation software for bulk and granular material simulation. Powered by industry-proven discrete element modeling (DEM) technology, EDEM quickly and accurately simulates and analyzes the behavior of coal, mined ores, soils, fibers, grains, tablets, and powders.

MotionSolve

Multi-body dynamics solver.

HyperStudy

Integrated optimization, DOE, and robustness engine.

HyperForm

A unique finite element based sheet metal forming simulation software solution.

HyperXtrude

An hp-adaptive finite element program that enables engineers to analyse material flow and heat transfer problems in extrusion and rolling applications.

Flux

Flux predicts low-frequency electromagnetic phenomena and optimizes the performance of any electromechanical device in Flux 3D, Skew, PEEC GUI.

Feko

Feko is a leading electromagnetic simulation software that uses multiple frequency and time domain techniques with true hybridization to analyze and solve a broad spectrum of electromagnetic problems.

Post-processing, Data Analysis, and Math Scripting**HyperView**

High performance finite element and mechanical system post-processor, engineering plotter, and data analysis tool.

HyperGraph

Engineering plotter and data analysis tool.

HyperGraph 3D

Engineering 3-D plotter and data analysis tool.

HyperView Player

Viewer for visualizing 3-D CAE results via the Internet or desktop.

AcuFieldView

CFD post-processor with the ability to manage large and complex CFD data visualization requirements.

HyperMath

Mathematical scripting language for numerical computation.

Templex

General purpose text and numeric processor.

Industrial & Conceptual Design, Manufacturing Solutions**Altair Inspire Studio**

Industrial design software that combines NURBS curve, surface, solid, polygonal and point cloud modeling tools alongside a photorealistic rendering engine.

Altair Inspire

Inspire allows designers, product engineers and architects to generate and investigate structurally efficient concepts quickly and easily. Inspire embeds Altair's OptiStruct, SimSolid and MotionView algorithms bringing topology optimization, multi-body-dynamics and SimSolid performance to a broader audience.

Inspire platform also brings solutions for manufacturing feasibility and processes simulation: Inspire Print3D, Cast, Mold, PolyFoam, Form, Extrude Polymer and Extrude Metal.

Data Management, Process Automation and Engineering Intelligence

Collaboration Tools

A solution that organizes, manages, and stores CAE and test data throughout the simulation life cycle.

Process Manager

Process automation tool for HyperWorks and third party software.
Processes can be created with the help of Process Studio.

ScriptView

HyperWorks IDE (Integrated Development Environment) for developing and debugging TCL and HyperMath Language (HML) scripts.

Workload- & License-Management (AU-enabled, not part of HyperWorks installation)

PBS Professional

Simplifies and automates the process of scheduling and managing compute workload across clusters, SMP and hybrid configurations. Enables implementation and optimization of site-specific scheduling policies.

Compute Manager

Web-based job submission and management portal to run, monitor and manage workloads and results on distributed resources.

Display Manager

Web-based application for remote visualization of CAE models and results through graphic nodes without data latency.

PBS Analytics

Web-based portal for visualizing HPC usage data (like job runtimes, wait times, queue loads) as well as application license usage.

Altair SAO (Software Asset Optimization)

Web-based application for Management, IT and Engineering to monitor and analyze usage of CAE/CAD software licenses.

More information about complete Altair product portfolio: <https://www.altair.com/product-showcase#filter=.product-altair-products> and <https://altairhyperworks.com/>

Altair Partner Alliance

With the *Altair Partner Alliance*, Altair is expanding the HyperWorks suite for lease licenses by including third-party products. The customers who participate in the alliance can use their existing pool of AU for both HyperWorks and participating partner applications at no or little incremental costs. Each partner application draws a different quantity of HyperWorks Units while running (Partner applications will always stack).

The alliance (<https://altairhyperworks.com/APAHome>) grows continuously and includes the following applications:

Fatigue Analysis	DesignLife by <i>nCode</i> (starts from 50 AU) DigitalClone by <i>Sentient Science</i> (5 AU) FEMFAT by <i>ECS (MAGNA PowerTrain)</i> (starts from 40 AU)
Crash & Impact Analysis	Crash Cad Calculate von <i>Crash Cad Calculate</i> (50 AU) MADYMO by <i>TASS-safe</i> (starts from 40.01 AU for coupled version)
CFD Analysis	AcuNexus von <i>Novus Nexus</i> (21 AU) SC/Tetra, STREAM by <i>Software Cradle</i> (starts from 50 AU)
MBD Analysis	CarSim, BikeSim, TruckSim by <i>Mechanical Simulation</i> (starts from 60 AU) ChassisSim by <i>ChassisSim</i> (starts from 20 AU) FTire by <i>cosin scientific software</i> (25 AU)
Stress Analysis	StressCheck by <i>ESRD</i> (starts from 50 AU)
Thermal Management	ElectroFlo, ThermoFlo, TESuite by <i>TES International</i> (starts from AU) RadTherm by <i>ThermoAnalytics</i> (starts from 50 AU)
Composite Modeling	Digimat by <i>e-Xstream</i> (starts from 50 AU) ESAComp by <i>Componeering</i> (starts from 40 AU) GENOA, MCQ-Composites by <i>AlphaSTAR</i> (starts from 30 AU) LAP, CoDA by <i>Anaglyph</i> (starts from 30 AU) MultiMech Suite by <i>MultiMech R&D</i> (starts from 40 AU) Multiscale Design System by <i>MDS, LLC</i> (starts from 15 AU) SwiftComp Micromechanics by <i>AnalySwift</i> (40 AU)
Manufacturing	CONVERSE by <i>PART Engineering</i> (50 AU) NovaFlow & Solid CV by <i>NovaCast Systems</i> (starts from 40 AU)
NVH Analysis	AlphaCell von <i>MATELYS</i> (35 AU) Coustyx by <i>ANSOL</i> (starts from 50 AU) EFEA by <i>Michigan Engineering Services</i> (50 AU) SEAM by <i>Cambridge Collaborative</i> (55 AU) VMAP by <i>TechPassion</i> (starts from 21 AU)
Material Library	KEY to METALS, KTM Premium Ed. by <i>Key to Metals</i> (starts from 40 AU) Materiality Database Pro by <i>Materiality</i> (35 AU)
Mathematics & Analytics	Maple, MapleSim by <i>Maplesoft</i> (starts from 25 AU)

In addition Altair Partner Alliance offers solutions for 1D System Simulation (**DSHplus**), Tolerance Analysis (**3DCS Analyst**), Projektmanagement (**PTB**), Complexity Management (**DesignProfit, OntoNet**), Rendering (**LinceoVR**) and Elektromagnetics Analysis (**JMAG**).

More information about currently available APA products: <https://www.altair.com/product-showcase#filter=.product-apa>