Výzkumný a zkušební letecký ústav, a.s.
Beranových 130, 199 05 Praha - Letňany
OR : Městský soud v Praze,oddíl B,vložka 446
IČO: 00010669 DIČ: CZ00010669
Bankovní spojení : [redacted]

Smlouva č.:
OS4200042

OBJEDNÁVKA

Číslo : OV4200191/2

Zakázka : VSMSW1
Středisko : 4000
Počet listů : 1

Advanced Engineering, s.r.o.

Na ostrohu 2405/16
160 00 Praha 6, Dejvice

IČ: 27456048 IČ: CZ27456048
OR: Městský soud Praha, oddíl C, vložka 113952

Vyřizuje / linka: [redacted]

Praha - Letňany
11.12.2020

P.č.	Množství / M.j.	Specifikace	Cena bez DPH
1	1 -	Objednáváme u vás: Maintenance pro Altair 60 HWU Altair HW Units for Windows, Linux and Unix Období: 1.1.-31.12.2021 Termín dodání : 31.12.2020 Platební podmínky : bankovním převodem s DUZP leden 2021 Na daňovém dokladu (dodacím listu) uvádějte prosím č. naší objednávky. Žádáme Vás o potvrzení přijaté objednávky včetně termínu dodání a ceny. 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.	[redacted]

Razítko a podpis : [redacted]

Razítko a podpis dodavatele :

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ADVANCED ENGINEERING s.r.o.

ALTAIR
CHANNEL PARTNER

Advanced Engineering s.r.o., Na Ostrohu 16, 160 00 Praha 6
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W: www.advanced-eng.cz

Číslo nabídky: **20.064/HP**
Datum: 9. prosince 2020

[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)*. Tyto sjednocené licenční jednotky jsou nástupcem *HyperWorks Units* a *solidThinking Units*. Pro případ Vaší poptávky, tedy zajištění softwarové údržby pro rozsah stávajících 60 HWU, potřebujete opět maintenance v rozsahu **60 jednotek (nově AUs)** v rámci profilu/balíku **Mechanical Engineer (**tento profil reprezentuje klasické *HyperWorks*). Podobně jako v případě původních jednotek HWU 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 2020 – 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-MTN Altair Units - Software maintenance, Mechanical Engineer bundle Období/Duration: 1.1.2021-31.12.2021	[redacted]
		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 2020.

Rádi Vám v případě potřeby poskytneme další doplňující informace.

[redacted]em,

[redacted]

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. 20.064/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	
OptiStruct (Analysis)	30	
RADIOSS	30	
HyperForm	30	
MotionSolve	30	
HyperStudy	25	
HyperXtrude	50	
OptiStruct (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 (2×21=42 AU), perform analyses with OptiStruct (2×30=60 AU), post-process the results with HyperView (2×21=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**
Number of CPU-cores per Run		
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+0.9×50 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.

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, 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 *nCode* (starts from 50 AU)
	DigitalClone by *Sentient Science* (5 AU)
	FEMFAT by *ECS (MAGNA PowerTrain)* (starts from 40 AU)
Crash & Impact Analysis	**Crash Cad Calculate** von *Crash Cad Calculate* (50 AU
	MADYMO by *TASS-safe* (starts from 40.01 AU for coupled version)
CFD Analysis	**AcuNexus** von *Novus Nexus* (21 AU)
	SC/Tetra, STREAM by *Software Cradle* (starts from 50 AU)
MBD Analysis	**CarSim, BikeSim, TruckSim** by *Mechanical Simulation* (starts from 60 AU)
	ChassisSim by *ChassisSim* (starts from 20 AU)
	FTire by *cosin scientific software* (25 AU)
Stress Analysis	**StressCheck** by *ESRD* (starts from 50 AU)
Thermal Management	**ElectroFlo, ThermoFlo, TESuite** by *TES International* (starts from AU)
	RadTherm by *ThermoAnalytics* (starts from 50 AU)
Composite Modeling	**Digimat** by *e-Xstream* (starts from 50 AU)
	ESAComp by *Componeering* (starts from 40 AU)
	GENOA, MCQ-Composites by *AlphaSTAR* (starts from 30 AU)
	LAP, CoDA by *Anaglyph* (starts from 30 AU)
	MultiMech Suite by *MultiMech R&D* (starts from 40 AU)
	Multiscale Design System by *MDS, LLC* (starts from 15 AU)
	SwiftComp Micromechanics by *AnalySwift* (40 AU)
Manufacturing	**CONVERSE** by *PART Engineering* (50 AU)
	Moldex3D by *CoreTech System* (starts from 35 AU)
	NovaFlow & Solid CV by *NovaCast Systems* (starts from 40 AU)
NVH Analysis	**AlphaCell** von *MATELYS* (35 AU)
	Coustyx by *ANSOL* (starts from 50 AU)
	EFEA by *Michigan Engineering Services* (50 AU)
	SEAM by *Cambridge Collaborative* (55 AU)
	VMAP by *TechPassion* (starts from 21 AU)
Material Library	**KEY to METALS, KTM Premium Ed.** by *Key to Metals* (starts from 40 AU)
	Materiality Database Pro by *Materiality* (35 AU)
Mathematics & Analytics	**Maple, MapleSim** by *Maplesoft* (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

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IČO: 00010669 DIČ: CZ00010669
Bankovní spojení : [redacted]

Smlouva č.:
OS4200042

OBJEDNÁVKA

Číslo : OV4200191/2

Zakázka : VSMSW1
Středisko : 4000
Počet listů : 1

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Vyřizuje / linka: [redacted]

Praha - Letňany
11.12.2020

P.č.	Množství / M.j.	Specifikace	Cena bez DPH
		Objednáváme u vás:	
1	1 -	Maintenance pro Altair 60 HWU Altair HW Units for Windows, Linux and Unix Období: 1.1.-31.12.2021 Termín dodání : 31.12.2020 Platební podmínky : bankovním převodem s DUZP leden 2021 Na daňovém dokladu (dodacím listu) uvádějte prosím č. naší objednávky. Žádáme Vás o potvrzení přijaté objednávky včetně termínu dodání a ceny. 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.	[redacted]

Razítko a podpis : [redacted]

Razítko a podp [redacted]

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