Technical Specifications for an End-to-End- Data Acquisition System for Engines

	ADA Specifictions	Suppplier Response Yes/No
1.	**Data Acquisition Hardware**	
1a	Number of analogue input channels: 12 for accelerometer shall have provision for 2 Tacho signal input and 2 analog voltage input	
1.b	Sampling rate: 100,000 samples per second per channel.	
1.c	Signal inputs: Direct Voltage and built-in signal conditioning for IEPE sensors	
1.d	A/D Resolution: 24 Bits, all channels	
1.e	**Real-time displays software required features:** Time Series Trace Time Series Snapshot Time Series Trend Trend & Speed Frequency Spectra Nth Octave RMS Meter Sound Intensity Cross Spectra Signal vs Signal Orbit Modulus/Phase Snapshot Transfer Function Waterfall Order Track Track Specific Order Order Based Snapshot Speed Curve Digital Panel Data Grid Over-range Grid Multi-Signal Histogram GPS Track Triggered Data Capture Record Event Information	
1.f	**Data recording and processing:** Recording and real time processing on all channels simultaneously. Recording time limited by PC memory only. In the event of a system crash or power outage, the data upto the point of crash should be preserved and retrieved	
1.g	Power Supply voltage:AC: 240 V , DC: 9 V to 36 V	
1.h	Analog input range: +/- 24V	
1.i	**Input filters**: AC / DC coupling, Differential buffered input,	

	Low pass, High Pass, Bandpass filter, Anti aliasing filters	
2.	**Data Acqusition Software:** Spreadsheet Style Setup Setup Information Stored with Data Oscilloscope Style display (Time & FFT) Multi-channel (Bar Chart) Display Dynamic / Static Signal Calibration Tools Automatic Gain Ranging Multi-channel Runtime Graphics for Numeric, Time, FFT and Over-range Automatic Increment of Filenames	
3	**Post Processing features**	
3.a	**Import Data Formats** ASCII Comma Separated Variables (CSV) DASYLab DIA / DIAdem DX3 SDF (HP/Agilent) LabVIEW Matlab MS Excel nCode RES Data RPC II / III Store Plex (Racal) WaveView (Iotech) Universal File (UFF) WAV	
3.b	**Export Data Formats** ASCII Comma Separated Variables (CSV) SDF (HP/Agilent) MS Excel RPC III TecPlot Universal File (UFF) WAV *.mat for Matlab software	
3.c	**Filtering** Phaseless filtering Median Filter Alpha Beta Filter Bessel (Low, High & Band Pass and Band Stop) Butterworth Filter Chebyshev (Low, High & Band Pass and Band Stop) Notch Filter Frequency Characteristics (Butterworth, Chebyshev& Bessel) RC Filter Impulse Response Filter	
3.d	**Frequency Analysis**	

	Weighting (A,B,C,D) Full Spectrum FFT (Half Range) Hopping FFT Inverse FFT (Full / Half Range) Inverse FFT (Long Complex Full Range) Omega Arithmetic Third Octave Bands RMS Over Frequency Band Autoregressive Filter Coefficients Envelope (Complex Demodulation) and Envelope (Fourier) Long FFT Instantaneous Frequency Interpolate Signal Minimum Phase Spectrum Maximum Entropy Spectral Estimate Short Time FFT Spectrum Level (Limit Hold & Hopping) and Zoom FFT Zoom Auto Spectral Density and Zoom Cross Spectral Density	
3.e	**Curve Fitting** Alpha-Beta Smooth Lagrange Least Squares Polynomial Remove Spikes from Data Smooth data Spline Fit Signal manipulation Amend Control Record Append Signal to Dataset Copy Whole Signal Copy Section of Signal Extract Named Elements Include Signals to Dataset Join Signals Mesh Two Signals Modify Named Elements Repair Signal Replace Signal Replace Single Named Element Reverse Signal Signal Quality Check Sort Signal Signal Decimation	
3.f	**Statistical Counting** Level Count (Number of Intervals, Size of Duration Interval, Interval Size as %age, Output All Duration, Referenced to Signal, Mean, Specify Reference Level), Mean Crossing Peak Count Peak and Trough Count Rainflow Counting (Cycle Peak/Trough) Rainflow Counting (Cycle Range/Mean) Joint Probability Density Function Probability Analysis and Probability Density Function	

3.g	**Shock Spectral Analysis** Shock (Lin. spacing - Primary, Residual & Composite) Shock (Log. spacing - Primary, Residual & Composite)	
3.h	**Generate Data** Sine (Sine, Damped, Swept, Modulated & Pulsed) Random (Gaussian, Rectangular & Narrow Band) Square (Pulse & Swept) Triangle, Saw Tooth , Exponential Decay, Straight Lines & Ramps	
3.i	**Time Domain Analysis** ADC Simulation: Apply Threshold ; Bias removal Auto/Cross Correlation (Lagged Products or Fourier Transform) Coherence Related Time History Convolution in the Time Domain Cosine Taper Function Ensemble Statistics Evaluate Trend (Mean, SD or RMS Values) Random Time History from Power Spectrum Normalise Signal Decimation Signal Generation Time Reverse Trend Analysis Trend Removal (Linear Averaging Points, Exponential Averaging & Linear Averaging Duration)	
3.j	Average Waterfalls Speed Signal from Tacho Extract Orders and Overall Level Generate Waterfall Generate Waterfall with phase Equalisation Order Filter Advanced Tacho Analysis Angular Vibration from Tacho Tacho Crossing times Tacho Ideal Equivalent Tacho to time periods Raw Speeds Average period Speeds Smooth Curve Fitted Speeds Interpolated Speeds Tacho Crossing Checks Synchronously Sampled Data Angular Vibration of Shaft Asynchronous to Synchronous Order Waterfall Order Waterfall with Phase Synchronous Orders Calculate Average Cycle Calculate Cycle Statistics Tacho Synthesis Order Domain Data Analysis	Rohit vashisth

	Auto Spectral Density Cross Spectral Density DFT FFT Multiple Spectrum RMS Level Spectrum RMS Over Order Range Transfer Function Zoom Transfer Zoom Auto Spectral Density Zoom Cross Spectral Density Order Waterfall with Phase Synchronous Orders Calculate Average Cycle Calculate Cycle Statistics Tacho Synthesis Order Domain Data Analysis Auto Spectral Density Cross Spectral Density	
4.	**Sensors: Quantity 8 Numbers** Sensor Type : Charge type Piezoelectricaccelerometer, Hermetically sealed, light weight, 360° Cable orientation Sensitivity: Typical 10 pC/g, Minimum 7.5 pC/g Frequency Range: 1 to 10Kz at 5%, and 0.1 Hz to 12 KHz at ±1 dB Tranverse Sensitivity : less than 3% Temperature Range: -65 ° C to +260 ° C Weiight: less than 20 grams Connector : Co-axial 10#32 Male Thread	
4.a	**Charge Amplifier:** Type: Must be compatible with the Sensor Offered. Number of charge amplifier : 8 channel	
4.b	**Cable: Accelerometer to Charge Amplifier** Low Noise, Co-axial Length: 10feet, with mating connectors Quantity: 8 numbers	
4.c	**Cable: Charge Amplifier to Data Acquisition Unit** Low- Noise, Co-axial Length:: 100 feet, with BNC to BNC connectors Quantity: 12 sets	

5. DIGITAL MULTIMETER (02 nos)

	Requirement Specification		
Sl. No.	***Specification***	***Range/type***	***Best accuracy***
1	Max voltage	1000v	-
2	Basic dc accuracy	0.09%	-
3	Dc voltage Measurement	600.0mV,6.000 V,60.00V,600.0 V, 1000V	0.09%
4	AC voltage Measurement	600.0mV,6.000 V,60.00V,600.0 V, 1000V	±1.0 % of reading
5	Dc current Measurement	60.00 mA,400.0 mA,6.000 A,10.00 A	±1.0 % of reading
6	AC current Measurement	60.00 mA, 400.0 mA, 6.000 A, 10.00 A	±1.0 % of reading
7	Resistance Measurement	600.0 Ω, 6.000 kΩ, 60.00 kΩ, 600.0 kΩ, 6.000 MΩ, 50.00 MΩ	± 0.9 % of reading
8	Capacitance Measurement	1000 nF, 10.00 µF, 100.0 µF, 9999 µF	± 1.2 % of reading
9	Frequency Measurement	99.99 Hz, 999.9 Hz, 9.999 Hz, 99.99 kHz	± 0.1 % of reading
10	Temperature Measurement	-40 °C to +400 °C (-40 °F to +752 °F)	1.0 % of reading

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6. Multifunction Portable Calibrators

	Requirement Specification	
Sl. No.	***Specification***	***Range/type***
1	Volt Measurement	-1 to 60 V
2	Current Measurement	± 100 mA
3	Resistance Measurement	0 to 4000 ohm
4	Frequency Measurement	0.05 to 50000Hz
5	Pulse Range Measurement	0 to 9999999
6	Volt Generation	-25 to 150 mV -3 to 12 V
7	Current Generation	0 to 25 mA
8	Resistance Generation	0 to 4000 ohm
9	Frequency Generation	0.05 to 10000Hz
10	Pulse Range Generation	0 to 9999999 pulses
11	mV generation (T/C-terminals)	-25 ... 150 mV
12	Measurement and simulation of thermocouples	B, R, S, E, J, K, N, T, U, L, C, G, D (13 types)
13	Measurement and simulation of RTD	Pt50 (385) Pt400 (385) Pt100 (3926) Pt100 (3923) Cu10 (427) Pt100 (385) Pt500 (385) Pt100 (391) Ni100 (618) Pt200 (385) Pt1000 (385) Pt100 (375) Ni120 (672) (13 types)

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7. Pressure calibration

	Requirement Specification	
Sl. No.	***Specification***	***Range/type***
1	Maximum voltage	30 volts: Non-operating
2	storage Temperature	-40 °C to 60 °C
3	Operating temperature	-10 °C to 55° C
4	Power	9V battery ANSI/NEDA 1604A or IEC 6LR619V alkaline; two batteries in 718
5	Battery Life	4 to 20 hours typical, depending on functions used
6	Display	LCD, 5 digit pressure and current simultaneous
7	Accuracy	0.05 %
8	Pressure	**Range** :-12 PSI to 300 PSI, (-850 mbar to 20.68 bar, -85 to 2068.42 kPa) **Résolution** : 0.01 psi, 1 mbar **Over pressure** :Over Pressure 375 PSI 25 bar **Functions** : Zero, Min, Max, Hold, Damp
9	Loop power	**Range** : 24 v dc **Accuracy :** ± 10%
10	Measure accuracy	**Range** : 0 mA to 24 mA **Resolution**: 0.001 mA **Accuracy**: 0.015%+ 1 count

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8. SIGNAL FUNCTION GENERATOR with

1. **Carrying case,**
2. **BNC-BNC adaptor cable – 10 feet long**
3. **Differential charge output adaptor cable- 3 Foot**
4. **Single ended Charge output cable- 5 Foot**

	Requirement Specification	
Sl. No.	***Specification***	***Range/type***
1	Waveform: Sine Wave	**Voltage Range** (0 to 9.9999 volts pk)(0.1 Hz to 100 kHz) **Voltage Accuracy (of setting, 10mV -10V)** (10Hz-20Hz) 0.15%±0.1mV (20Hz-30kHz)0.05%±0.1Mv (30kHz – 50kHz) 0.07%±0.1mV (50kHz – 80kHz) 0.08%±0.1mV (80kHz – 100kHz) 0.10%±0.1mV **Charge Range** (10 Hz to 100 kHz) 1 to 9,999.9 pCpk **Charge Accuracy (of setting)** (10pC –10,000pC, 10Hz-30kHz) 0.20%±0.1pC **Resolution (voltage & charge)** 0.1mV or 0.1 pC **Level Types :**RMS, peak or pk-pk units **Frequency Range :**0.1 Hz - 99,999.9 Hz **Distortion :** (10 Hz to 50 kHz) <0.75% (50 kHz to 100 kHz) <3.00% **Frequency Accuracy (of setting)** (3 Hz to 100 kHz)± 0.005% **Variable phase (all waveform types)**:0 to 360°

2	Waveform: Square Wave	**Voltage Range :** 0 to 9.9999 Volts pk **Charge Range :** 0 to 9,999.9 pCpk **Resolution (voltage & charge):**0.1mV or 0.1 pC **Level Types:** RMS, peak or pk-pk units **Frequency Range:** 0.1 Hz - 20 kHz **Frequency Accuracy (of setting):**(3 Hz to 100 kHz) ±0.005% **Rise/Fall Time:** (10% - 90%) ≤3.0 µsec. **Asymmetry Less than :** 3% at 10 kHz **Overshoot**:Less than 2% **Voltage Accuracy (of setting):** 0.1% typical, 0.25% max
3	Waveform: Triangle Wave	**Voltage Range:** 0 to 9.9999 Volts pk **Charge Range :**0 to 9,999.9 pCpk **Resolution (voltage & charge**): 0.1mV or 0.1 pC **Level Types**: RMS, peak or pk-pk units **Frequency Range :** 0.1 Hz - 20 kHz **Frequency Accuracy (of setting):** (3 Hz to 100 kHz) ±0.005% **Voltage Accuracy (of setting):** 0.1% typical, 0.25% max
4	Waveform: Saw-Tooth Wave	**Voltage Range :** 0 to 9.9999 Volts pk **Charge Range**:0 to 9,999.9 pCpk **Resolution (voltage & charge):**0.1mV or 0.1 pC **Level Types:** RMS, peak or pk-pk units **Frequency Range**:0.1 Hz - 20 kHz **Frequency Accuracy (of setting)**:(3 Hz to 100 kHz) ±0.005% **Voltage Accuracy (of setting):** 0.1% typical, 0.25% max
5	DC Output (and DC offset)	**Voltage Range** :±9.9999 VDC **Voltage Accuracy (of setting):** 0.05%±0.1Mv **Resolution:** 0.1mV
6	Microvolt DC Output – Bridge Mode	**Voltage Range** ±1 µvolt to ±99.999 mVDC **Voltage Accuracy (of setting)** 0.05% ±5 µvolt Resolution 0.1 microvolt
7	Output Connectors	**Connector Impedance** 50 ohms **For Voltage** BNC coaxial **ForDifferential Charge (DE)**output connector **ForSingle-ended Charge (SE)**output connector

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8	Ratio Speed Signal Function	**Signal Type** Sine, Square, Single pulse, Odd Pulse **Signal Range** 0 to 9.9999 Volts Pk **Resolution** 0.1 mV **Frequency Range (ratio)** 0.1 to 100X Chan A frequency, Step 0.1 **Units** RMS, peak, or pk-pk
9	Single Pulse Signal Function	**Signal Type** 1-cycle sine or ½ cycle square (TTL) **Signal Range** 0 to 9.9999 Volts Pk **Resolution** 0.1 mV Pulse Duty Cycle 3% to 100% **Frequency Range (ratio)** 0.1x to 100x Ch. A frequency, Step 0.1 **Frequency Range (fixed)** 1Hz to 100kHz **Units** RMS, peak, or pk-pk
10	Odd Pulse Signal Function	**Odd Pulse Type** Long or Short **Odd Pulse Size** 0 to 999% of Base Pulse **Number of Base Pulses between Odd Pulse** 1 - 100 **Frequency Range (ratio)** 0.1x to 100x Ch. A frequency, Step 0.1 **Frequency Range (fixed)** 1 Hz to 99,999.9 Hz **Range** 0 to 9.9999 Volts Pk **Resolution** 0.1 mV **Voltage Units** RMS, peak, or pk-pk **Waveform** Sine wave
11	Sweep Function (Channels A & B)	**Sweep time** 1 to 999 sec (16.67 min) **Sweep time Step** 1 Second **User Controls:** Set START Frequency Set STOP Frequency Set SWEEP time (seconds) GO PAUSE CANCEL **Channels** A alone or A & B together

9. CRO

	Requirement Specification	
Sl. No.	***Specification***	***Range/type***
1	Bandwidth	70 MHz
2	channel	2
3	record length	2.5k point at the all-time bases
4	Power source voltage	100 to 240V ±10%
5	Power source frequency	100V to 240V ,50Hz to 60Hz 115V ,400Hz±10%
6	Power consumption	30 W maximum
7	Vertical resolution	8 bits
8	Input sensitivity range	2 mV to 5 V/div on all models with calibrated fine adjustment
9	DC gain accuracy	±3%, from 10 mV/div to 5 V/div
10	Maximum input voltage	300 VRMS CAT II; derated at 20 dB/decade above 100 kHz to 13 Vp-p AC at 3 MHz and above
11	Offset range	2 mV to 200 mV/div: ±1.8 V >200 mV to 5 V/div: ±45 V
12	Input coupling	AC, DC, GND
13	Input impedance	1 MΩ in parallelwith 20 pF
14	Vertical zoom	Vertically expand or compress a live or stopped waveform
15	Horizontal system — Analog channels	Time base range 50 MHz and 70 MHz models : 5 ns to 50 s/div
16	Time base accuracy	50 ppm
17	Horizontal zoom	Horizontally expand or compress a live or stopped waveform
18	USB interface	USB host port on front panel supports USB flash drives. USB device port on back of instrument supports connection to PC
19	Maximum USB flash drive size	64 GB
20	Sample	Sample data only
21	Average	Waveformaveraged, selectable: 4, 16, 64, 128

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22	Single Sequence	Use the Single Sequencebutton to capture a single triggered acquisition sequence
23	Roll	At acquisition time base settings of >100 ms/div
24	External trigger input	Included on all models
25	Trigger modes	Auto, Normal, Single Sequence
26	Trigger types	**Edge** : Conventionallevel-driven trigger. Positive or negativeslope on anychannel. Couplingselections: AC, DC, Noise Reject, HF Reject, LF Reject **Video :**Trigger on all lines or individuallines, odd/even or all fieldsfrom composite video, or broadcast standards (NTSC, PAL, SECAM) **Pulse Width (or Glitch)** :Trigger on a pulse widthlessthan, greaterthan, equal to, or not equal to, a selectable time limitrangingfrom 33 ns to 10 s
27	Trigger source	Twochannelmodels: CH1, CH2, Ext, Ext/5, AC Line
28	Trigger view	Displays trigger signal while Trigger Viewbuttonisdepressed
29	Trigger signal frequency readout	Providesafrequencyreadout of the trigger source.
30	Waveform measurements	**Types** : Amplitude, Time **Measurements** : ΔT, 1/ΔT, ΔV **Automatic measurements** : Period, Frequency, Pos Width, NegWidth, Rise Time, Fall Time, Maximum , Minimum , Peak-Peak, Mean, RMS, Cycle RMS, Cursor RMS, Phase, Pos Pulse Cnt, Neg Pulse Cnt, Rise EdgeCn, FallEdgeCn, Pos Duty, NegDuty, Amplitude, Cycle Mean, CursorMean, BurstWidth, Pos Overshoot, NegOvershoot, Area, Cycle Area, High, Low, Delay RR, Delay RF, Delay FR, Delay FF
31	Waveform math	**Arithmetic :**Add, Subtract, Multiply **Math functions** : FFT **FFT :** Windows: Hanning, Flat Top, Rectangular 2048 sample points **Sources :**Twochannelmodels: CH1 - CH2, CH2 - CH1, CH1 + CH2, CH1 × CH2
32	Autoset	**Autoset menu** : Single-button, automatic setup of all channels for vertical, horizontal, and trigger systems, with undo Autoset **Square wave** : Single Cycle, Multicycle, Rising or FallingEdge **Sine wave** Single Cycle, Multicycle, FFT Spectrum

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		Video (NTSC, PAL, SECAM) Field: All, Odd, or Even Line: All or Selectable Line Number
33	Frequency counter	**Resolution :** 6 digits **Accuracy (typical)** :+ 51 parts per million including all frequencyreferenceerrors and +1 count errors **Frequency range :** AC coupled, 10 Hz minimum to ratedbandwidth **Frequency counter signal source** : Pulse width or edge selected trigger source Frequency counter measures selected trigger source at all times in pulse width and edge mode, including when the oscilloscope acquisition Is halted due to changes in run status, or acquisition of a single shot event has completed. The frequency counter does not measure pulses that do not qualify as legitimate trigger events. Pulse Width mode: Counts pulses of enough magnitude inside the 250 ms measurement window that qualify as triggerable events (ex. all narrow pulses in a PWM pulse train if set to "<" mode and the limitis set to a relatively small number). Edge Trigger mode: Counts all pulses of enough magnitude.
34	Environmental	**Temperature** Operating 0 to +50 °C Non operating –40 to +71 °C **Humidity** Operating and non operating Up to 85% RH at or below +40 °C Up to 45% RH up to +50 °C

10	**Workstation Laptop:**		
	Processor	13th Gen Intel® Core™ i9-13900HK (24 MB cache, 14 cores, 20 threads, up to 5.40 GHz Turbo)	
	Operating System	Windows 11 professional Single Language, English	
	Video Card	NVIDIA® GeForce RTX™ 4090, 16 GB GDDR6	
	Display	16" QHD+ (2560 x 1600) 240Hz, 3ms, 100% DCI-P3, ComfortView Plus, NVIDIA G-SYNC + Advanced Optimus	
	Memory	32 GB, LPDDR5, 6000 MHz, integrated	
	Hard Drive	2TB RAID 0 (2 x 1TB), M.2, PCIeNVMe, SSD	
	Microsoft Office	latest (Professional series)	
	Security Software	LiveSafe™ Consumer 12-month subscription	
	Support Services	3Y Premium Support Plus and Onsite Service at ADA	
	Keyboard	AlienwareCherryMX ultra low-profile mechanical keyboard with per-key AlienFX RGB - US English	
	Ports	2 USB 3.2 Gen 1 ports with PowerShare 1 USB-C 3.2 Gen 2 port with DisplayPort™ 1 Thunderbolt™ 4 port with Power Delivery and DisplayPort™ 1 headset (headphone and microphone combo) port 1 HDMI 2.1 port 1 mini Displayport 1 power-adapter port	
	Slots	1 microSD-card slot	
	Camera	1080p at 30fps, FHD RGB+IR camera Dual-array microphones	
	Touchpad	Multi-touch gesture Premium Precision glass Non RGB touchpad with integrated scrolling Multi-touch gesture Premium Precision glass	

		RGB LED AlienFX lighting touchpad with integrated scrolling	
	Primary Battery	90Wh Battery	
	Power	330W Small Form Factor adapter	
11	**Workstation specification**		

Processor Make	Intel
Number of Cores per Processor	24
Processor Base Frequency (GHz)	2.4
Processor Turbo Frequency (GHz)	4
Processor Description	Intel Xeon Gold Series
Processor Number	Intel Xeon Gold 6230R
Number of sockets available on the motherboard	2
Number of Sockets populated with the Processors	2
Cache (MB)	35.75
Form Factor	Desktop
Chipset Number	Intel C621
Expansion Slots (PCIe x 1) (Number)	1
Expansion Slots (PCIe x 4) (Number)	1
Expansion Slots (PCIe x 8) (Number)	1
Expansion Slots (PCIe x 16) (Number)	2
Expansion Slots (PCI) (Number)	1

Graphics Type	Dedicated/Discrete
Number of Graphic Cards	1
Graphic Card Description	NVIDIA RTX A4000 16GB
Operating System (Factory Pre-Loaded)	Windows 11 Professional 64 bit or latest
Recovery Image Media	CD from the OEM / Stored in Partition of the Hard Disk / USB Drive from the OEM / On Line / Cloud
OS Certification	Windows
RAM Type	DDR4
RAM Speed (MHz)	2933
Type of Memory	ECC RDIMM
RAM Size (GB)	256
Total Numbers of DIMM Slots Available	6
Number of DIMM Slots Populated	4
RAM Expandability upto using spare DIMM Slots (GB)	768
Type of Drives used to populate the internal Bays	PCIe
Number of Drives	1
Capacity of each Drive (GB)	1024
Type of Drives used to populate the internal Bays	PCIe

Number of Drives	1
Capacity of each Drive (GB)	1024
Type of Drives used to populate the Internal Bays	SATA
Total number of Internal Bays available for SATA Drive	5
Number of Internal Bays populated with SATA Drive	1
Each SATA Drive Capacity (GB)	2000
Speed of each SATA Drive (RPM)	7200
Total SATA Drive Capacity (GB)	2000
RAID level	0,1,5,1+0
Number of RAID Controller Ports	8
Speed of RAID Controller Ports (Gbps)	6
RAID Controller Cache (GB)	0
Type of Ethernet Ports	Single Gigabit NIC 10/100/1000
Number of Ethernet Ports	2
Wireless Connectivity	Yes
If Yes, Type of Wireless Connectivity	Wi-Fi 802.11ac
Bluetooth Connectivity	Yes
If Yes, Version of Bluetooth Available	4.2
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Number of USB Version 3 point 0 / 3 point 1, Gen 1 Ports	8
Number of USB Type C Ports	2
Number of VGA Ports	1
Number of HDMI Ports	2
Number of DP Ports	4
Display Availability	Monitor (Make same as CPU chassis make)
Quantity	2
Display Size (cm)	58- 61
Display Type	Non Touch
Panel Type	Flat
Panel Technology	IPS
Display Resolution (Pixels)	1920x1080
LED Backlit	Yes
TCO Compliance for Monitor	TCO 07
Colour Gamut	99% sRGB
Monitor Stand	Height Adjustable
Maximum Power (Watts)	950
Minimum Power Efficiency (%)	90
Power Management Unit	Yes
Redundant Power Supply	No

Mouse Connectivity, If available	Wired
Type of Mouse, If available	Optical Scroll
Keyboard Connectivity, if available	Wired
Type of Keyboard, if available	Standard with Rupee Symbol
Optical Drive	DVD ROM
Number of External Bays	2
Security	H/W Based
Docking Station for Mobile Workstation	No
Availability of Bundled Software	Yes
Type of Bundled Software	Artificial Intelligence Based Performance Improvement Software
Support and calibration	01 Year
Minimum Operating Temperature (Degree C)	10
Maximum Operating Temperature (DEgree C)	35
Minimum Operating Humidity (%RH)	20
Maximum Operating Humidity (%RH)	80
On Site OEM Warranty (Year)	3
Vendor prequalification criteria	5 years in similar vibration data acquisition system
Contact person for technical clarification	080-25087162 rohitvashistha.ada@gov.in

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