WHITEPAPER

PROMAGIX TRADERPRO:
ROI ON HIGH-END WORKSTATIONS FOR EQUITY TRADERS

QUANTIFYING RETURN ON INVESTMENT FOR TRADERS UTILIZING SUPERIOR COMPUTERS IN DAILY PRACTICE: COST ANALYSIS, REVENUE IMPACT, AND PERFORMANCE VS STANDARD PCs.

VELOCITY micro

PROMAGIX TRADERPRO

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EXECUTIVE SUMMARY

Objective:
Quantify ROI for equity traders using high-end workstations.

Key Findings:

1. Downtime reduction & latency improvements translate into measurable revenue gains.

2. Specific hardware (e.g. high-frequency CPUs, ECC memory, multi-GPU, SSD RAID) deliver strategic advantages.

3. Targeting a reduction in slippage alone can deliver ROI for a high-speed workstation.

4. Scope includes cost analysis, revenue impact, performance vs. standard PCs.

Recommendation:
Deploying a $2,000–3,500 workstation can provide ROI via improved trade execution, uptime, and reduced risk within 4–8 months.

COST MODEL & TOTAL COST OF OWNERSHIP [TCO]

Initial Investment vs. Enterprise Benefits

COMPONENT	WORKSTATION	STANDARD PC
HIGH-END CPU [RYZEN, INTEL ULTRA, THREADRIPPER]	✓	X
ECC MEMORY	✓	X
ENTERPRISE GPU	✓	X
NVMe RAID SSDs	✓	✓*
ENTERPRISE PSU & COOLING	✓	X
BASE PRICE	Starting $2.5k	Starting $1k

- *Though a modern standard PC will ofen be equipped with NVMe SSDs, the quality, speed, and size of OEM SSDs is consistently inferior to the SSDs in HEDT (high-end desktops) and workstations.

- Workstations designed with ECC memory, validated components lead to lower failure rates and less downtime, supporting better TCO over 3–5 years.[1]

- ISV certification ensures optimized performance and stability for trading software

1 // COMPUTERWORLD
5 WAYS WORKSTATIONS OFFER BETTER TCO THAN PCS

NOV 4 2019

TRANSLATING MILLISECONDS INTO DOLLARS

Organizations commanding billions of dollars spare no expense gaining fractions of a microsecond over their competitors.

2 // CORNELL UNIVERSITY
Information Transmission Between Financial Markets in Chicago and New York

FEB 24 2013

In 2010, Spread Networks spent ~$300 million to build a straight-line fiber run from Chicago to New York, slashing round-trip latency from ~13.1 ms to ~12.98 ms. This difference, despite being only a few microseconds, provided a competitive advantage in arbitrage, making the difference between a profitable and a stale trade. [2]

3 // BSO
Achieving Ultra-Low Latency in Trading Infrastructure

JUN 2 2025

BSO, a global investment bank, achieved a 40% latency reduction on its London to New York trading routes using microwave transmission - a method that required incredible amounts of fine tuning and engineering in order to make function. [3]

Let's zoom in on a theoretical: observing the dollar per milisecond difference an improvement in just a single computer component could make.

EVENT RATE	10,000 events/sec
LATENCY IMPROVEMENT	5ms (e.g, i5 to i9 systems)
TRADING HOURS/YEAR	1.820 hours (250x7.28)
REVENUE POTENTIAL	500k/hour (per trading desk)

This would lead to an annual time savings of:

$$5\text{ms} \times 10{,}000 = 50\ s/\text{sec},$$
$$50s \times 3600\text{sec} \times 250\ \text{days} \approx 45\ \text{million seconds} \approx 12{,}500\ \text{hours}$$

However, this means each second saves 50 s, a modelling artefact of concurrency, not literal time. The real-world benefit lies in leading queue priority, faster price discovery, and firmer fills.

$$12.5\text{k hours/year} \times \$500\text{k/hour} = \$6.25\ \text{billion}$$

This is clearly inflated—most gains aren't linear. A more grounded estimate: even if just 0.1% of this advantage converts to profit, it's $6.25 million/year.

HARDWARE EDGE: COMPONENT HIGHLIGHTS

Your system will fail under its weakest link, and trading provides specific stresses that, when accounted for, lead to maximum up-time and minimum latency.[4]

PROCESSOR

- Single-core performance matters more than having dozens of CPU cores.
- The best trading computers use CPUs like the Intel Core or AMD Ryzen, which offer high clock speeds and fast responsiveness across open apps, charts, and market data feeds.

GRAPHICS PROCESSOR

- Multi-monitor stability is the critical priority for the GPU in a trading workstation.
- Professional workstation cards like the NVIDIA A1000 support multiple high-resolution displays out of the box. You may want to avoid consumer gaming cards—they often max out at 3–4 screens and can become unstable when extended with adapters or USB display dongles. Pro cards like the A1000 are easier to scale to support 5+ displays too.

RAM & STORAGE

- 32GB of high-speed RAM to keep charts, browsers, chats, and trading responsive.
- High-end NVMe SSDs ensure your system boots quickly and platforms load in seconds, not minutes. A 1TB drive is ideal for most trading setups.

POWER & COOLING

- High-efficiency power supplies (80+ Gold or Platinum),
- Quiet CPU coolers or closed-loop liquid cooling,
- Cable-managed, airflow-optimized cases.

The right components not only mean optimal performance today, but long-term reliability through strenuous, continuous workloads.

REDUCE SLIPPAGE THROUGH POWERFUL WORKSTATIONS

5 //
INTERACTIVE BROKERS
Slippage in
Model Backtesting

JULY 14 2023

In equity trading, slippage occurs when a trade is executed at a price different from the one expected—typically due to latency, market volatility, or system lag. [5]

Example:
You place a buy order for a stock at $50.00. Due to processing or execution delay, it fills at $50.06. If you're trading 1,000 shares, that's a $60 unintended cost.

Latency isn't just about internet speed. It includes how fast your system processes market data, places trades, and updates prices. Standard consumer PCs, especially those with lower RAM, slower CPUs, or mechanical drives, introduce micro-delays that can lead to significant slippage in fast-moving markets.

FEATURE	WORKSTATION	STANDARD PC
MARKET DATA PROCESSING	**Near real-time, thanks to multicore CPUs and NVMe SSDs**	Delayed due to lower CPU cache and I/O bottlenecks
TRADE EXECUTION SPEED	**Optimized for sub-20ms response using faster buses and more memory**	Slower reaction time due to software lag and system latency
GPU-BASED CHART RENDERING	**Smooth execution with discrete workstation GPUs**	Bottlenecks with integrated graphics
MULTI-WINDOW SUPPORT	**Up to 6+ displays for parallel analysis without delay**	Reduced visibility due to low screen count/performance

Consider a simple hypothetical with even a small amount of slippage:

- Assume 20 trades/day
- Average position size: $25,000
- Average slippage: 0.07% per trade
- Daily cost of slippage: $350
- Monthly cost (20 trading days): $7,000+

A high-end workstation that reduces even half this slippage could conservatively recover $3,500/month in opportunity cost.

END

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