MCP SERVER | NO CODE | CLOUD HOSTED

PPI & DPI Density Calculator MCP for AI Agents

Accurate Pixel Calculations for Display Engineering

The PPI & DPI Density Calculator gives developers and designers the precise math needed for high-density displays. Use this MCP to instantly find a screen's Pixel Per Inch (PPI), determine the necessary Windows scaling percentage, or translate any physical measurement, like inches, into exact pixel counts.

A+ Quality Score 100/100

ppi | dpi | scaling | resolution | pixel-density

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vinkius.com/mcp/ppi-dpi-density-calculator

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

PPI & DPI Density Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Working on interfaces that need to look perfect across different monitors is tough. You can't just guess the math; you need precision for PPI, DPI, and scaling factors. This MCP handles all the heavy lifting of display engineering so your AI agent provides accurate numbers instantly.

Instead of jumping between multiple utility websites or doing complex formulas by hand, you tell your agent what screen resolution and diagonal size you're working with. It calculates the exact pixel density for you. Then, if you need to know how a physical component—say, a 3-inch card—will translate into pixels on that specific display, it handles the conversion. Similarly, if you need to figure out the correct Windows scaling percentage relative to standard DPI baselines, your agent gets that number immediately.

This calculator is essential for anyone building interfaces that must work flawlessly from a laptop screen to a massive 4K monitor. By connecting this MCP via Vinkius, your AI client gains immediate access to these core mathematical tools, keeping your development process focused on design, not math.

Core Capabilities

01 — Determine Display Pixel Density

Calculates the exact PPI of a monitor when given its resolution and diagonal size.

02 — Calculate Scaling Factor

Determines the necessary Windows scaling percentage needed to adapt designs relative to a 96 DPI baseline.

03 — Convert Physical Units to Pixels

Translates any real-world physical measurement, such as inches, into its required pixel count for screen display.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/ppi-dpi-density-calculator** — connect your AI agent in three steps.

01 You prompt your AI agent with the specific parameters needed—for example, a monitor's size and resolution, or a physical dimension and target PPI.

02 The agent sends these inputs to this MCP. The system runs the necessary mathematical calculation using its internal tools.

03 Your agent returns the precise result, whether it’s an updated PPI number, a scaling percentage, or the final pixel count.

The bottom line is that you get accurate, calculated display math without ever leaving your chat window.

Built For

Any developer or designer whose job involves building UIs for multiple screen types needs this. It helps front-end developers eliminate guessing games about physical dimensions and ensures UX designers always match their mockups to real-world display math.

Front-End Developer

Uses the MCP to confirm that components designed in pixels will scale correctly when deployed on a client's monitor, using the scaling percentage tool.

UX/UI Designer

Checks physical component sizes against multiple display standards. They use this MCP to translate mockups from inches into pixel dimensions for dev handoff.

Product Engineer

Verifies that the target PPI of a new device meets established industry benchmarks before development begins, using the density calculation tool.

What Changes When You Connect

01 Stop guessing scaling. Use the `calculate_scaling_percentage` tool to instantly find the correct Windows adjustment factor, ensuring your UI adapts properly across different operating systems.

02 Never worry about unit mismatch again. The `convert_physical_to_pixels` function lets you translate any physical measurement into precise pixel counts needed for design mockups.

03 Get immediate PPI confirmation. You can use `get_pixel_density` to confirm the exact pixel density of a monitor just by knowing its diagonal size and resolution, saving hours of manual calculation.

04 Build reliable cross-platform interfaces. By integrating this math MCP, your agent provides the technical foundation needed for consistent design output regardless of user hardware.

05 Faster handoff to development. Providing concrete numbers—like the required scaling percentage or pixel count—removes guesswork from your dev team's requirements list.

Real-World Applications

Checking a new monitor standard

A developer needs to know if their existing UI components will look correct on a brand-new 27-inch, 3840×1600 display. They ask their agent for the PPI, and it immediately returns the precise density number needed to confirm scalability.

Designing print vs screen elements

A designer needs to make sure a physical logo element that is 2 inches wide looks correct on both paper (96 DPI baseline) and a high-res monitor. They use the `convert_physical_to_pixels` tool to get accurate pixel equivalents for all mediums.

Adjusting design for OS scaling

A team member notices that their UI looks slightly off on certain corporate laptops with high DPI settings. They ask the agent for the required Windows scaling percentage, and it provides the exact factor (e.g., 150%) to fix the layout.

Verifying design consistency

A product manager needs to compare a mockup's intended PPI against a specific client monitor model. They input the details into the calculator, and the agent confirms if the current density matches the required standard.

Patterns to Avoid

Assuming 96 DPI is always enough

✗ AVOID

A developer assumes that because most older systems run at a baseline of 96 DPI, their design will scale fine. This fails when the target screen has much higher pixel density.

✓ INSTEAD

Always use the `get_pixel_density` tool to confirm the actual PPI of your target device. Then, use `calculate_scaling_percentage` to ensure the UI is mathematically prepared for that specific density.

Mixing units in calculations

✗ AVOID

A designer tries to calculate pixels by multiplying inches by DPI without accounting for the correct scaling factor or unit conversion. This results in wildly inaccurate mockups.

✓ INSTEAD

When you need a pixel count from a physical size, use the `convert_physical_to_pixels` tool. It handles the dimensional math correctly so your numbers are reliable.

Manual formula errors

✗ AVOID

Trying to calculate PPI or scaling factors using complex formulas in Excel repeatedly introduces human error and slows down design iteration.

✓ INSTEAD

Let your agent handle it. Just give the parameters (resolution, diagonal size) and let the `get_pixel_density` tool return the exact number you need.

The Right Fit

Use this MCP if your project requires precise math for any screen or physical dimension. Specifically, use it when you need to calculate PPI from known resolutions, or when a design must scale perfectly across different DPI settings using the scaling percentage tool. You should also use it anytime you're converting real-world measurements into pixels.

Don't use this if your problem is purely conceptual (e.g., 'How many buttons do I need?'). For flow logic or data management, you need a different kind of MCP, like a CRM integration tool. This calculator only handles geometry and measurement; it can't manage user accounts or send emails.

PPI & DPI Density Calculator for Display Engineering Math

Today, designing an interface means constantly juggling math: screen size versus pixel count. You might get a physical component dimension in inches but need to know what that translates to on a 4K monitor in pixels. Worse, if you're trying to figure out the correct scaling factor for Windows or macOS, doing those calculations by hand is slow and highly prone to error.

With this MCP, you skip the calculator app entirely. Your agent just needs three numbers—like the diagonal size, resolution, and physical dimension—and it gives you the precise PPI density or pixel count instantly. You get reliable, development-ready math results every time.

PPI & DPI Density Calculator for UI Scaling Consistency

The most tedious part of UI design is validating that a component designed at 96 DPI will look right on a modern, high-density screen. Manually comparing different scaling factors and confirming the final PPI density across multiple OS environments takes forever.

This MCP centralizes all those calculations. It confirms your exact pixel density using `get_pixel_density` and tells you exactly what Windows scaling factor is needed via `calculate_scaling_percentage`. Your designs are mathematically sound, period.

PPI & DPI Density Calculator: 3 Tools for Display Math Utility

These tools provide instant access to industry-standard calculations, allowing you to determine PPI, scale designs, or convert physical units into precise pixel measurements.

#	TOOL	DESCRIPTION
01	`calculate_scaling_percentage`	Determines what Windows scaling percentage is required if you are basing your design on a 96 DPI standard.
02	`convert_physical_to_pixels`	Calculates the exact number of pixels needed to represent a specific physical measurement, like an inch or a centimeter.
03	`get_pixel_density`	Finds the precise pixel density (PPI) for any display given its diagonal size and resolution.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U What's the PPI for a 15-inch laptop screen running at 2880×1800?

Here is the pixel density calculation for your display:

- **Screen Size:** 15 inches
- **Resolution:** 2880 × 1800 pixels
- **Calculated PPI:** Approximately **141.9 PPI**.

This number confirms the required density for high-resolution displays.

U If I have 160 PPI, what scaling factor should my design use?

To maintain visual consistency with a standard 96 DPI baseline when your actual display density is 160 PPI, you need to apply a **166.7%** Windows scaling factor.

This adjustment ensures that elements look correctly sized and proportioned regardless of the user's OS settings.

U How many pixels are in a 4-inch space on an unknown screen?

To calculate this, we need to know the PPI first. Assuming your target PPI is 120:

- **Input:** 4 inches
- **Density (PPI):** 120
- **Required Pixel Count: 480 pixels**.

Use this formula for any physical size conversion.

Frequently Asked Questions

01 **How do I calculate the PPI of my monitor?**

You can use the `get_pixel_density` tool. Simply provide your screen's width in pixels, height in pixels, and the diagonal size in inches.

02 **What is the 96 DPI baseline?**

The 96 DPI (Dots Per Inch) baseline is the industry standard for Windows scaling. The `calculate_scaling_percentage` tool uses this as a reference to find your required scaling factor.

03 **Can I convert inches to pixels directly?**

Yes, using the `convert_physical_to_pixels` tool. You just need to provide the target size in inches and your current screen PPI.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"ppi-dpi-density-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

PPI & DPI Density Calculator is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

INDEPENDENT PLATFORM DISCLAIMER

DOCUMENT INFORMATION

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MCP Server	PPI & DPI Density Calculator MCP
Server ID	`019f26f1-0b42-712d-bae7-84fbb6b9f1b3`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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