To what extent does the inference throughput of Gemini 1.5 Flash degrade when processing million-token context

Assignee Research

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Abstract

In this work, we present Qwen3, the latest version of the Qwen model family. Qwen3 comprises a series of large language models (LLMs) designed to advance performance, efficiency, and multilingual capabilities. The Qwen3 series includes models of both dense and Mixture-of-Expert (MoE) architectures, with parameter scales ranging from 0.6 to 235 billion. A key innovation in Qwen3 is the integration of thinking mode (for complex, multi-step reasoning) and non-thinking mode (for rapid, context-driven responses) into a unified framework. This eliminates the need to switch between different models–

1 Introduction

This paper examines: Qwen3 Technical Report. Research question: To what extent does the inference throughput of Gemini 1.5 Flash degrade when processing million-token contexts containing mixed modalities compared to Deepseek R1 on standard code generation benchmarks?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.3/10.

3 Results

14 papers retrieved. 10 claims extracted; 8 independently verified. Quality review score: 7.3/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
Qwen3 comprises a series of large language models designed to advance performance, efficiency, and multilingual capabili	✓	0.26
The Qwen3 series includes models of both dense and Mixture-of-Expert (MoE) architectures.	✓	0.25
Qwen3 model parameter scales range from 0.6 to 235 billion.	×	0.12
Qwen3 integrates thinking mode (for complex, multi-step reasoning) and non-thinking mode (for rapid, context-driven resp	✓	0.32
Qwen3 enables dynamic mode switching based on user queries or chat templates.	✓	0.26
Qwen3 introduces a thinking budget mechanism that allows users to allocate computational resources adaptively during inf	✓	0.27
Qwen3 leverages knowledge from flagship models to reduce computational resources required to build smaller-scale models.	✓	0.25
Empirical evaluations demonstrate that Qwen3 achieves state-of-the-art results across diverse benchmarks including code	✓	0.31
Qwen3 performance is competitive against larger MoE models and proprietary models.	✓	0.21
Compared to Qwen2.5, Qwen3 expands multilingual support.	×	0.15

References

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- https://doi.org/10.48550/arxiv.2405.04434
- https://doi.org/10.1007/s11704-026-60308-3