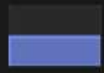


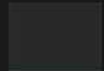
성능



CPU
8% 4.62GHz



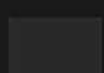
메모리
23.7/47.2GB (50%)



디스크 0(E:)
SSD
0%



디스크 1(C:)
SSD
0%



디스크 2(F:)
USB
0%



디스크 3(D:)
USB
0%



이더넷
이더넷 5
S: 8.0 R: 24.0 Kbps



GPU 0
NVIDIA GeForce R...
4% (40 °C)



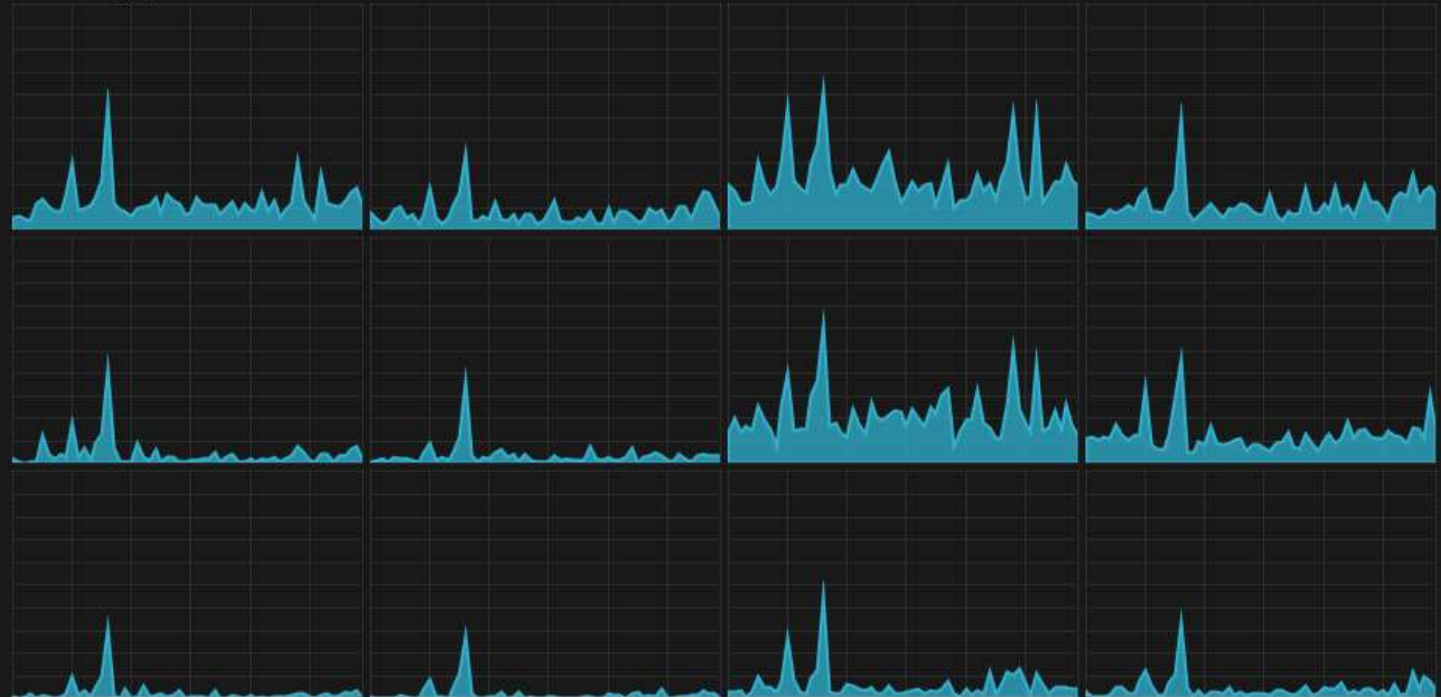
GPU 1
AMD Radeon(TM)...
0% (49 °C)

CPU

60초 간 이용률(%)

AMD Ryzen 5 7600 6-Core Processor

100%

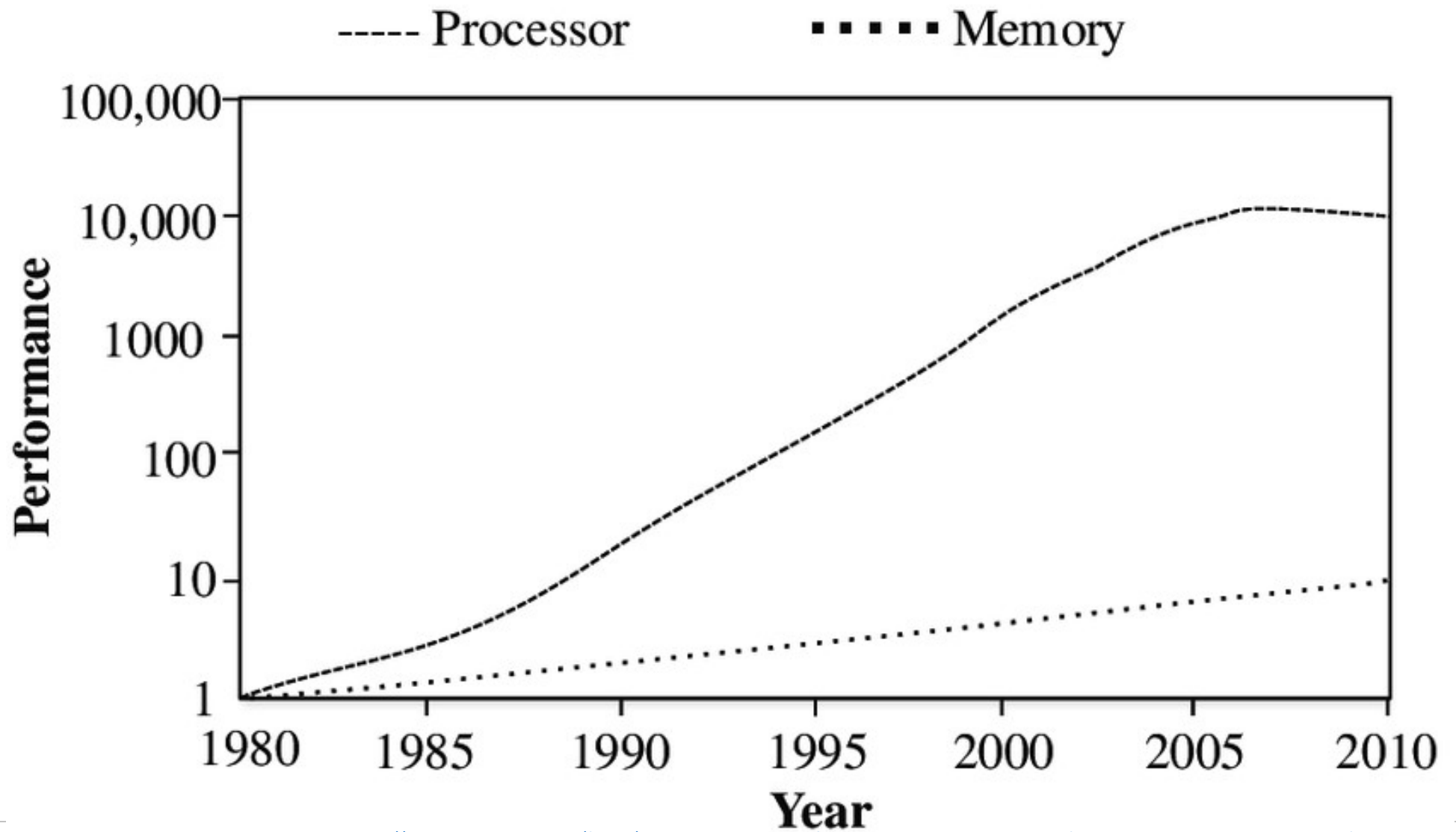


이용률 속도
8% 4.62GHz

프로세스 스레드 핸들
343 8636 221116

작동 시간
4:05:10:27

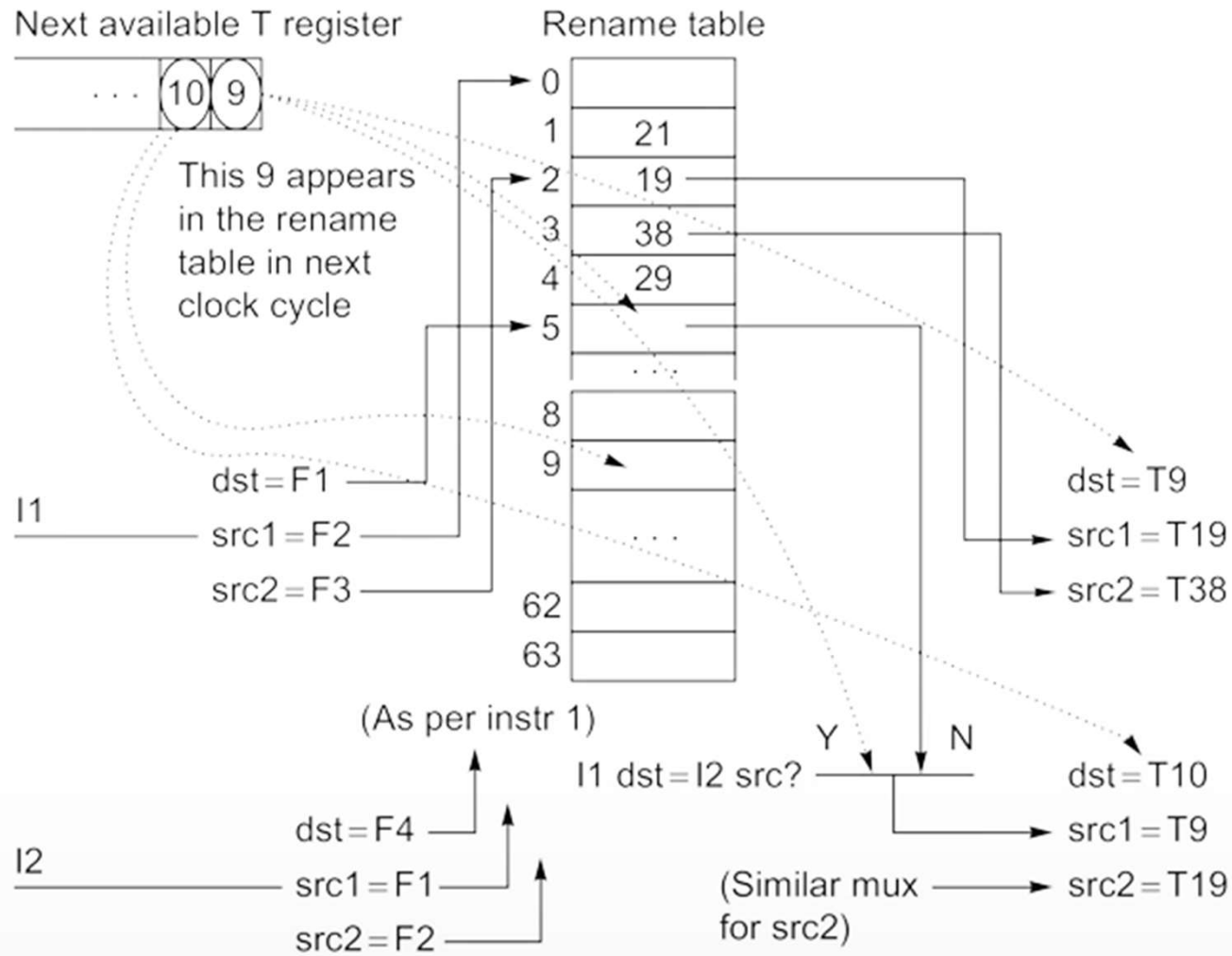
기본 속도: 3.80GHz
소켓: 1
코어: 6
논리 프로세서: 12
가상화: 사용
L1 캐시: 384KB
L2 캐시: 6.0MB
L3 캐시: 32.0MB



https://www.researchgate.net/figure/Processor-Memory-performance-gap-over-time-exemplifying-the-memory-wall-problem-19_fig1_357894452

OoOE

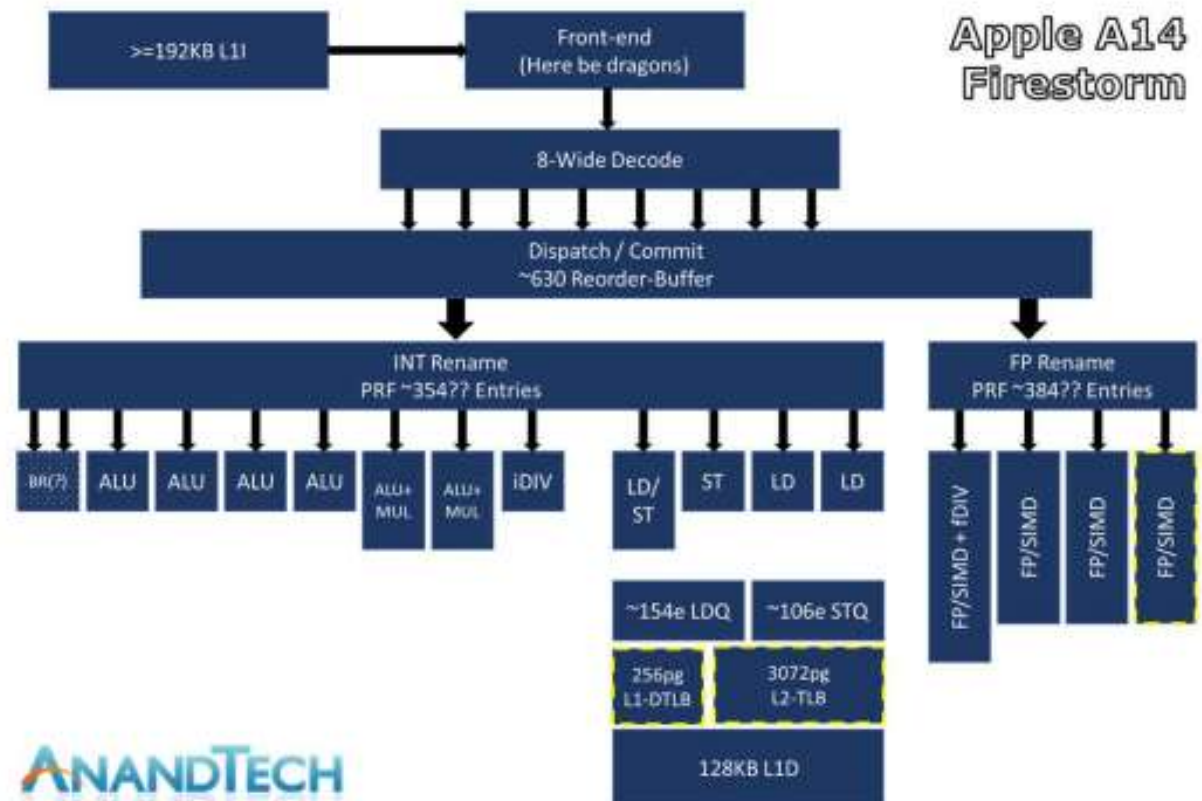
Out of Order Execution (비순차실행)



What about Apple?

- **Massive Caches**
 - Not really a mystery – seen from space
 - Likely the greatest contributor to low energy – extremely fewer accesses to DRAM than competitors
 - No other ARM competitor comes even close to paying the area for this significant advantage
- Measured massive Indirect Branch Target chains
- Tons of simple ALUs, 3xLD to feed it
- Extremely short mis-predict pipe (IPC >> frequency)
- **No OP cache.** 8-Wide decode fixed-width instructions.
 - Why not 10-wide? Why not more? Fixed width decode is cheap
- Vertical Integration with SW
 - Adding cute ISA instructions does not make up for lacking this
- SMP, not SMT

Apple A14
Firestorm



ANANDTECH

Spring MVC

소개 및 환경구성

Spring MVC

Java용 오픈소스 프레임워크 (2003.06 release)

J2EE 경량 대체제로 큰 인기를 누렸음

- POJO
- AOP
- Data access framework

설정보다 관습

- Spring Boot

구현내용 및 개발환경 구성

구현내용

자료구조

```
Article
{
  ** id : 12345
  title : "제목"
  body: "특별한 내용 없습니다."
  authorId : 967782
  createdAt : 2023-07-12T12:23:56
  updatedAt : 2023-07-12T12:23:56
}
```

API

기능	METHOD	URI
등록	post	/article
수정	put	/article/{id}
삭제	delete	/article/{id}
<u>단건</u> 조회	get	/article/{id}
목록 조회	get	/article/all

구현내용 및 개발환경 구성

Spring initializr

- <https://start.spring.io>

• https://start.spring.io/#type=gradle-project&language=kotlin&platformVersion=3.1.1&packaging=jar&jvmVersion=17&groupId=dev.fastcampus&artifactId=mvc&name=mvc&description=spring_boot_mvc&packageName=dev.fastcampus.mvc&dependencies=web,data-jpa,h2



Project

☐ Gradle - Groovy ☒ Gradle - Kotlin ☐ Java ☒ Kotlin ☐ Groovy

☐ Maven

Spring Boot

☐ 3.2.0 (SNAPSHOT) ☐ 3.1.2 (SNAPSHOT) ☒ 3.1.1 ☐ 3.0.9 (SNAPSHOT)

☐ 3.0.8 ☐ 2.7.14 (SNAPSHOT) ☐ 2.7.13

Project Metadata

Group

Artifact

Name

Description

Package name

Packaging ☒ Jar ☐ War

Java ☐ 20 ☒ 17 ☐ 11 ☐ 8

Dependencies ADD DEPENDENCIES... CTRL + B

Spring Web WEB +

Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

Spring Data JPA SQL +

Persist data in SQL stores with Java Persistence API using Spring Data and Hibernate.

H2 Database SQL +

Provides a fast in-memory database that supports JDBC API and R2DBC access, with a small (2mb) footprint. Supports embedded and server modes as well as a browser based console application.

Spring MVC

서비스 구현

구현 실습

Hello world API 구현

구현 실습

CRUD 서비스 구현

구현 실습

Unit 테스트 (JUnit)