Comparison between Quarkus Spring Data Jpa Integration, Quarkus Spring Data Jpa Api Extension and Spring Data Jpa
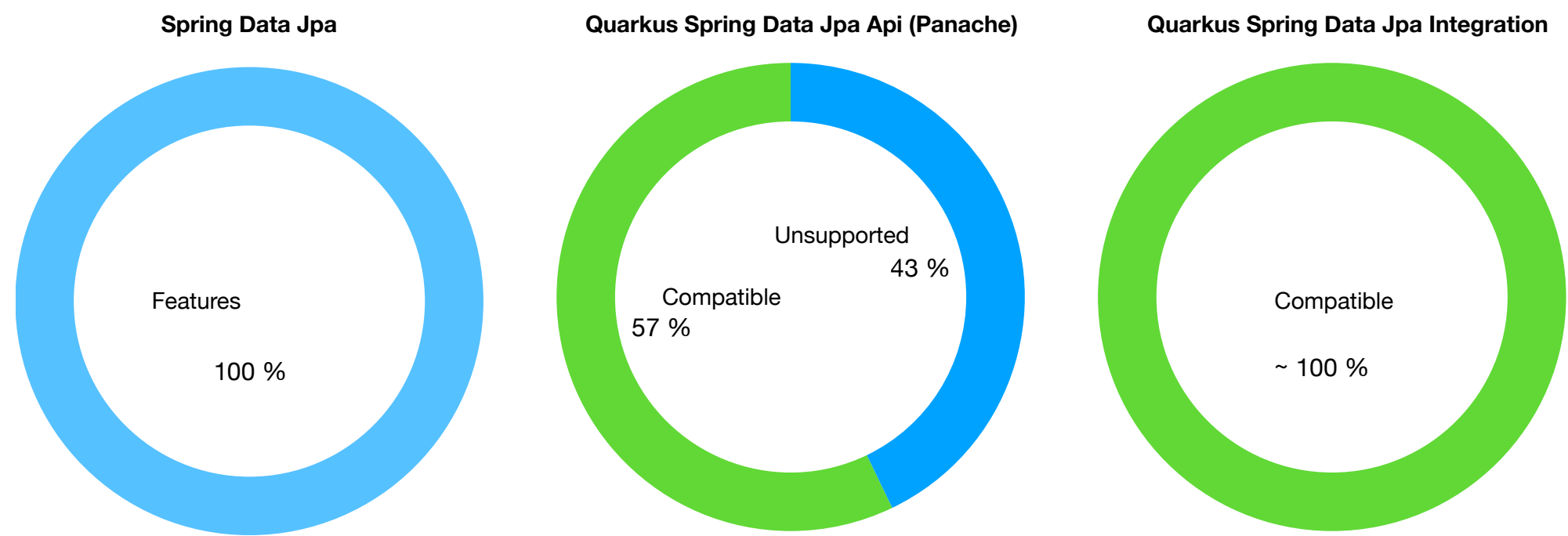
Compatibility:

Spring Data Jpa

Features

100 %

Quarkus Spring Data Jpa Api (Panache)

Unsupported
43 %

Compatible
57 %

Quarkus Spring Data Jpa Integration

Compatible

~ 100 %

Spring Data Jpa Features

Feature	Quarkus Spring Data Jpa Api	Quarkus Spring Data Jpa Integration	Spring Data Jpa
CrudRepository interface	✔	✔	✔
PagingAndSortingRepository interface	✔	✔	✔
JpaRepository interface	✔	✔	✔
Custom Repository Interfaces	✔	✔	✔
SimpleJpaRepository implementation	✔	✔	✔
QueryByExampleExecutor	☐	✔	✔
Query Methods	✔	✔	✔
Native queries with @Query	☐	✔	✔
Named queries with @Query	☐	✔	✔
@Transactional	✔	✔	✔
@NoRepositoryBean	✔	✔	✔
Repository Fragments	✔	✔	✔
Custom repository configurations	✔	✔	✔
Multiple repository configurations	☐	✔	✔
Property Expressions (transversal property)	✔	✔	✔
Special Parameter Handling (Pageable, Sort)	✔	✔	✔
Limiting Query Results	✔	✔	✔
Returning types (Collections / Iterables)	✔	✔	✔
Returning type: Streamable	☐	✔	✔
Optional (null handling)	✔	✔	✔
Async query result (java.util.concurrent.Future,...)	☐	✔	✔
Custom Configuration with MicroProfile Config (quarkus	✔	✔	✔
Custom CdiRepositoryConfiguration	☐	✔	✔
Custom Base Repository	☐	✔	✔
@QueryHints	☐	✔	✔
Projections (dtos)	☐	✔	✔
Specifications	☐	✔	✔
Persistable.isNew or EntityInformation	☐	✔	✔
COMPATIBLE FEATURES	16	28	28
UNSUPPORTED FEATURES	12	0	0

Comparison between Quarkus Spring Data Jpa Integration, Quarkus Spring Data Jpa Api Extension and Spring Data Jpa (Springboot)

Benchmark - Throughput (average):

Request / s

	Quarkus Spring Data Jpa Api Extension	Quarkus Spring Data Jpa Integration	Spring Data Jpa (Springboot)
# 1	2359,2	2439,3	2397,4
# 2	2290,6	2449,8	2422,8
# 3	2442,3	2457,2	2418,5
# 4	2195,9	2469,8	2548,1
AVG	2322	2454	2447

Number of samples

	Quarkus Spring Data Jpa Api Extension	Quarkus Spring Data Jpa Integration	Spring Data Jpa (Springboot)
# 1	2131112	2203231	2165417
# 2	2069176	2213031	2188334
# 3	2206264	2219676	2184486
# 4	1983685	2231211	2301471
AVG	2097559	2216787	2209927
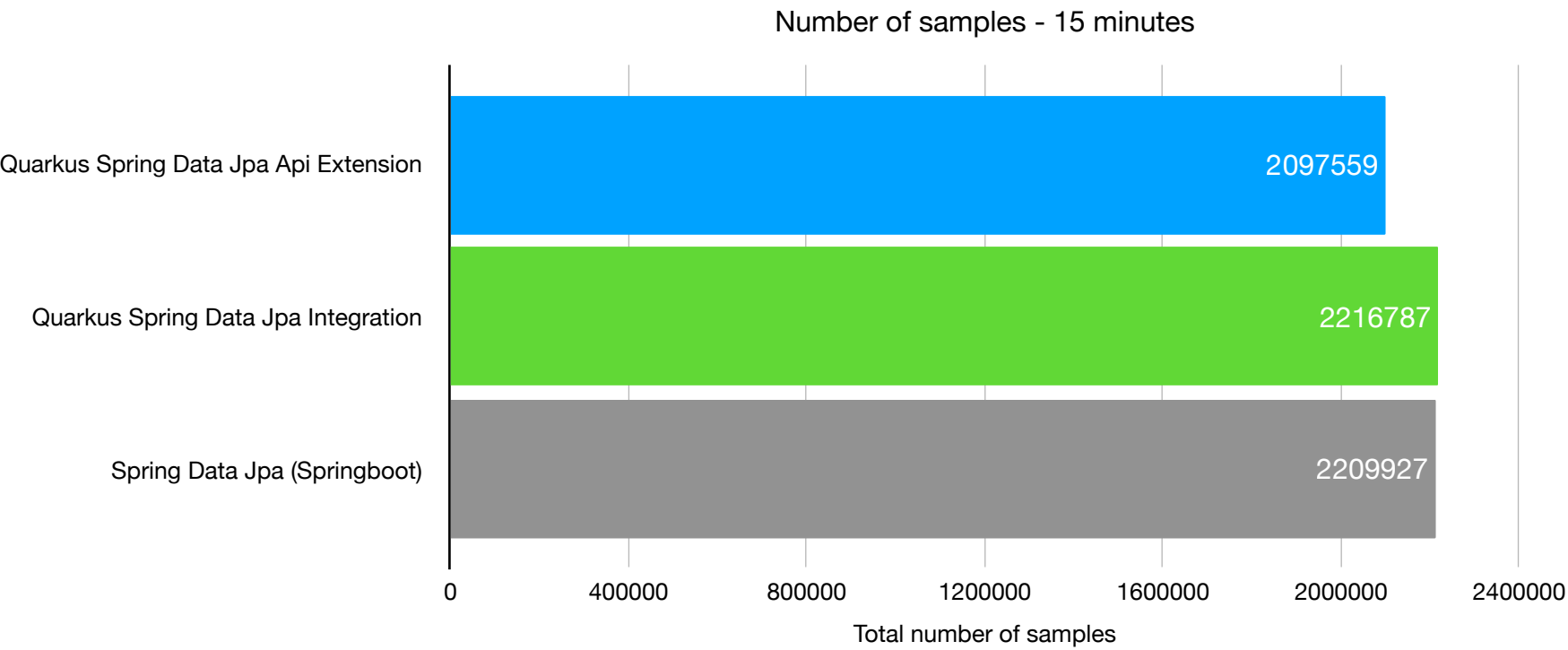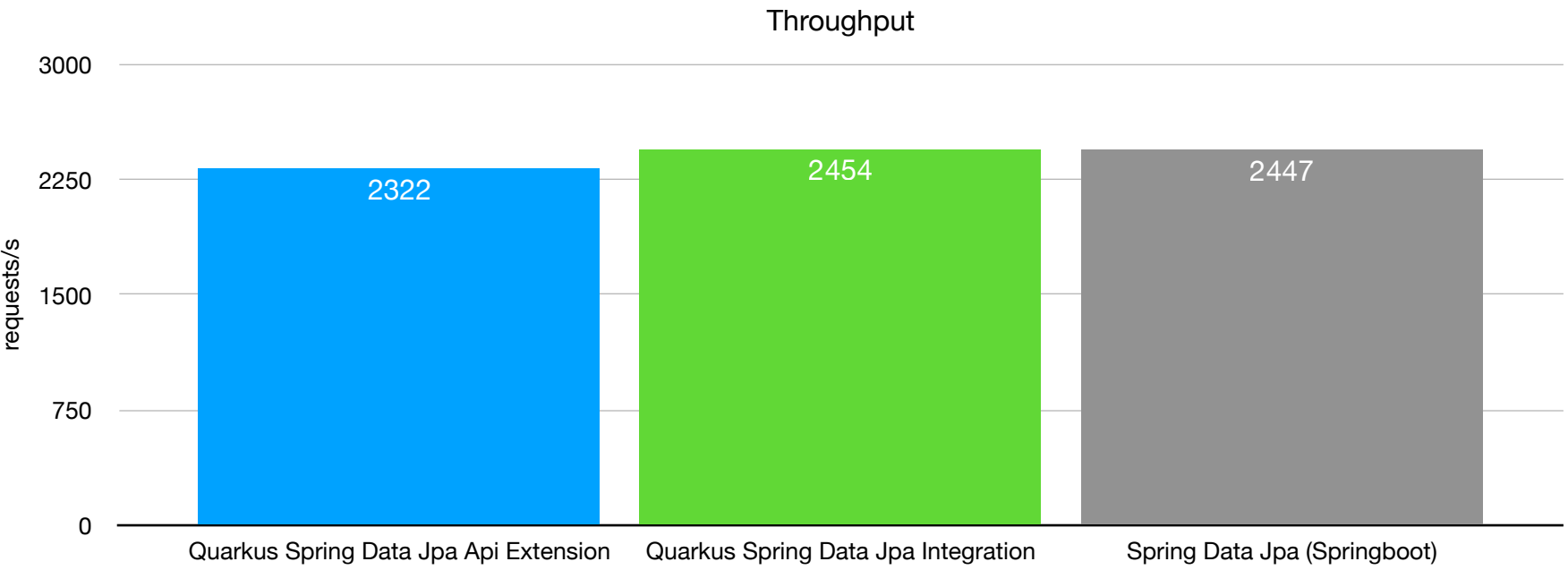
Throughput

Number of samples - 15 minutes

Load test details:
- users: 250
- ramp-up: 15 seg
- duration: 15 min
- max db-connections: 20
- Operations per user/loop: INSERT / GET / FIND PAGE / FIND SLICE / FIND SLICE TOP 3 RESULTS / UPDATE
- Quarkus v1.6.0.Final
- Quarkus Spring Data Jpa Integration v1.1
- Springboot 2.3.1.RELEASE

Test environment:
- Kubernetes v1.17
- Docker v18.6
- OS: linux
- architecture: amd64
- JDK 11
- capacity per node:
  - cpu: 8
  - memory: 14Gi
- deployment requests/limits:
  - cpu: 4
  - memory: 2Gi

Comparison between Quarkus Spring Data Jpa Integration, Quarkus Spring Data Jpa Api Extension and Spring Data Jpa (Springboot)

Benchmark - Resource usage

Quarkus Spring Data Jpa Api Extension

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cpu usage (m)	1	3999	4004	3993	3661	3131	3196	3715	3894	4000	3991	3994	3999	3985	3993	3997
Memory usage (Mi)	175	421	438	463	519	521	523	524	524	525	537	537	557	558	558	558

Quarkus Spring Data Jpa Api Extension
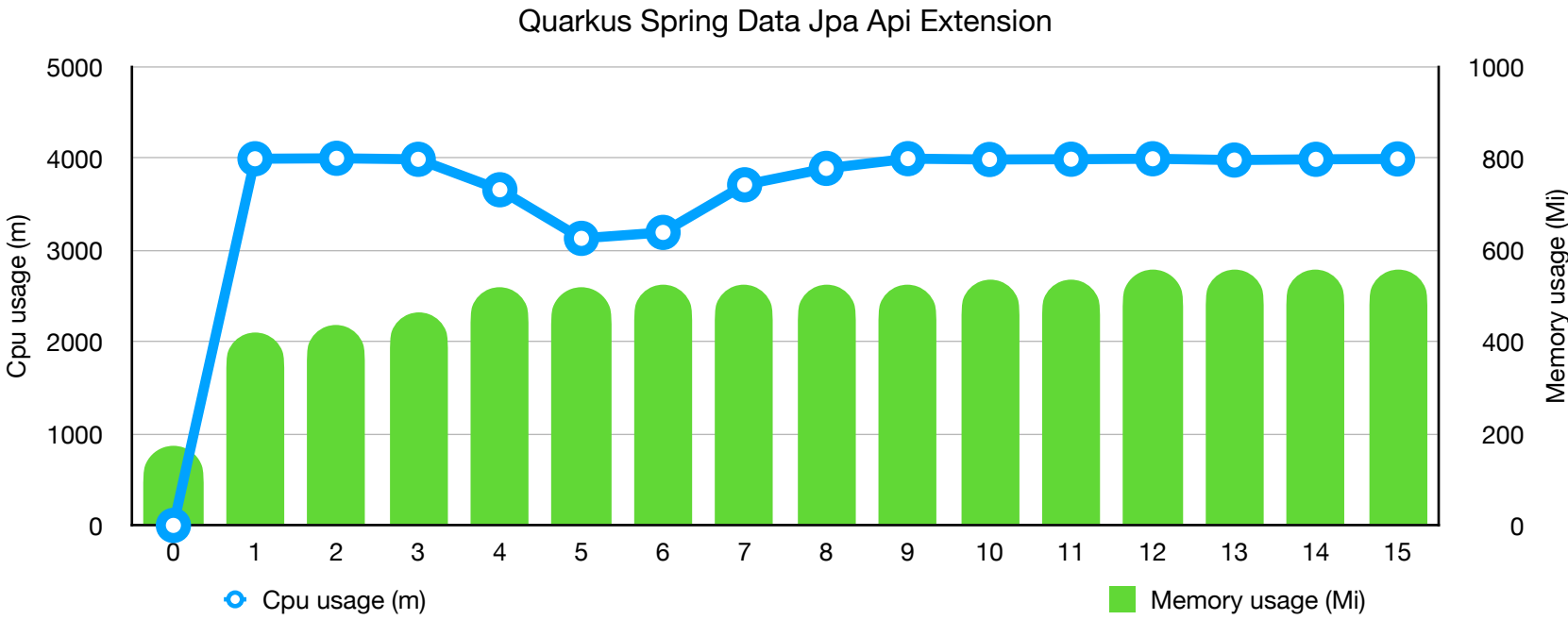
Quarkus Spring Data Jpa Integration

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cpu usage (m)	1	3990	4001	3996	4000	4003	3999	3973	4004	4001	3996	3976	3989	3993	4003	4006
Memory usage (Mi)	205	462	499	519	521	523	524	581	581	616	616	617	618	628	646	655

Quarkus Spring Data Jpa Integration
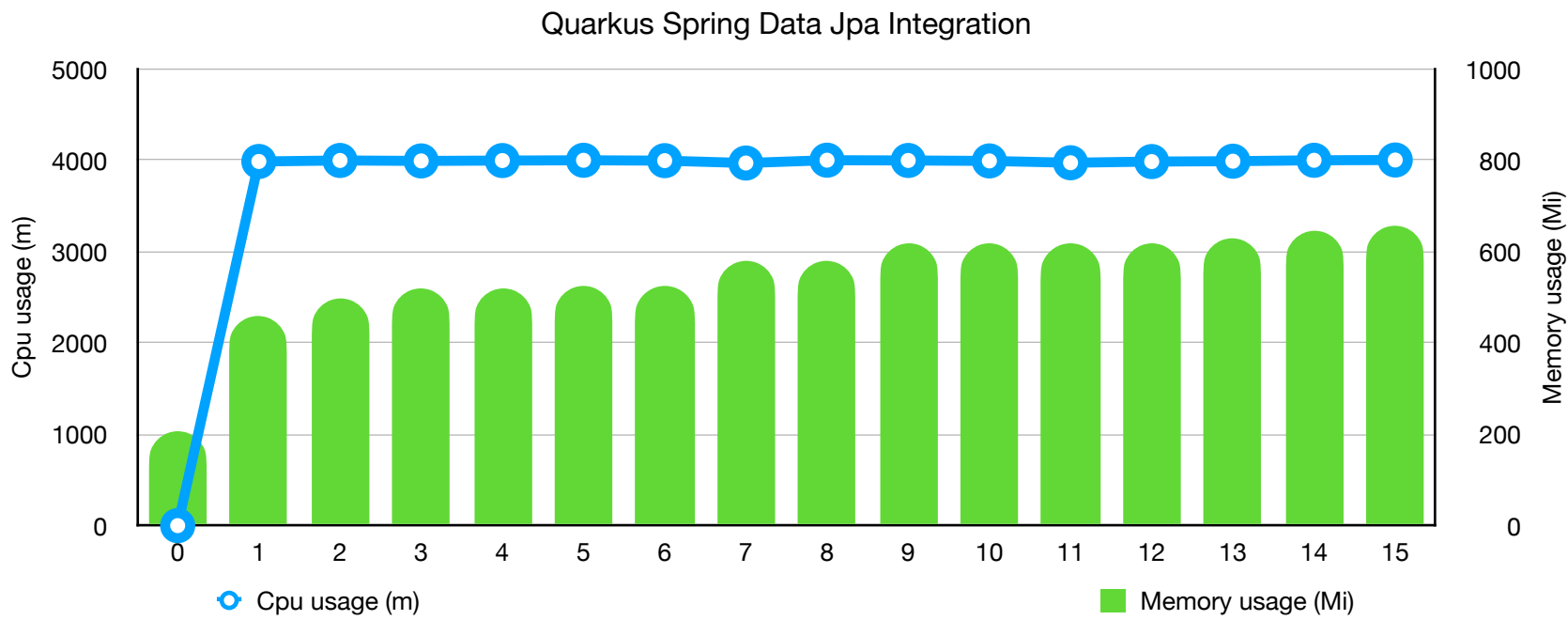
Spring Data Jpa (Springboot)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cpu usage (m)	2	3996	4003	3997	3995	3993	3994	4001	3994	3984	3986	3977	3917	3735	3739	3535
Memory usage (Mi)	654	766	796	813	814	815	815	814	814	815	815	815	815	815	815	816

Spring Data Jpa (Springboot)
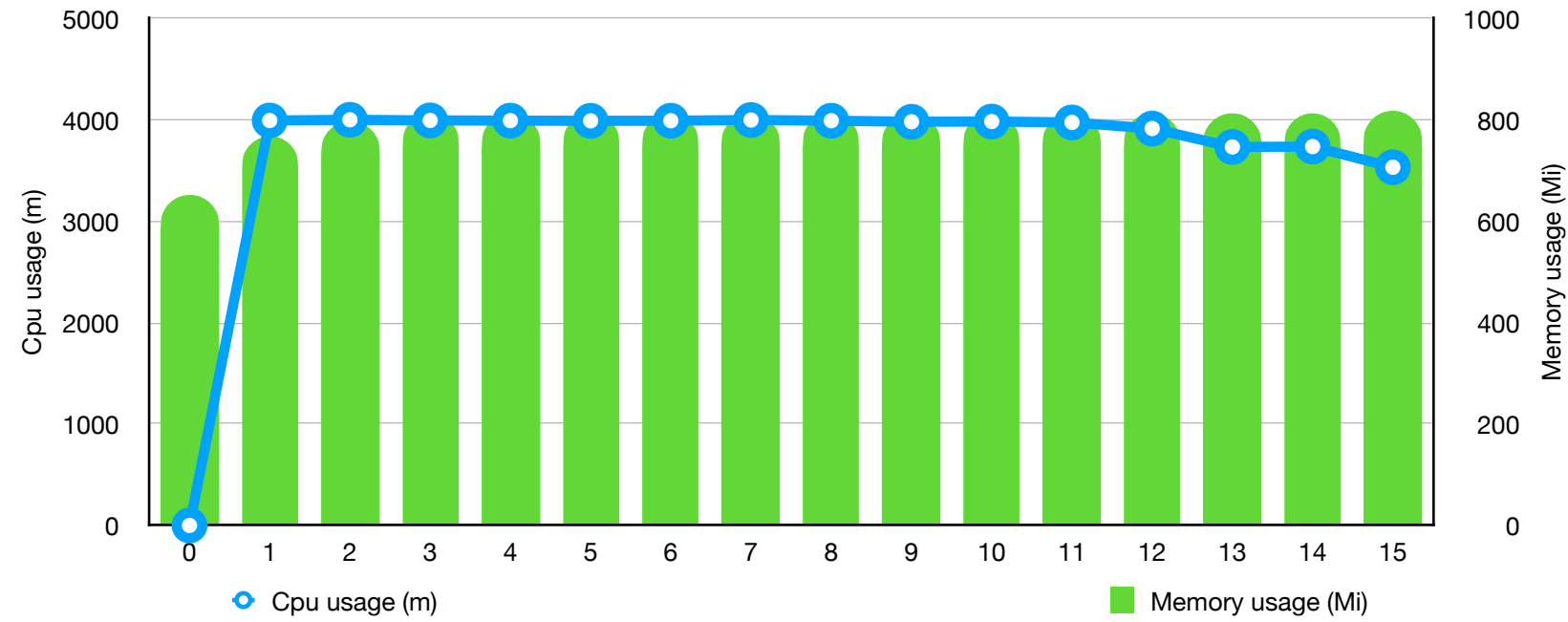
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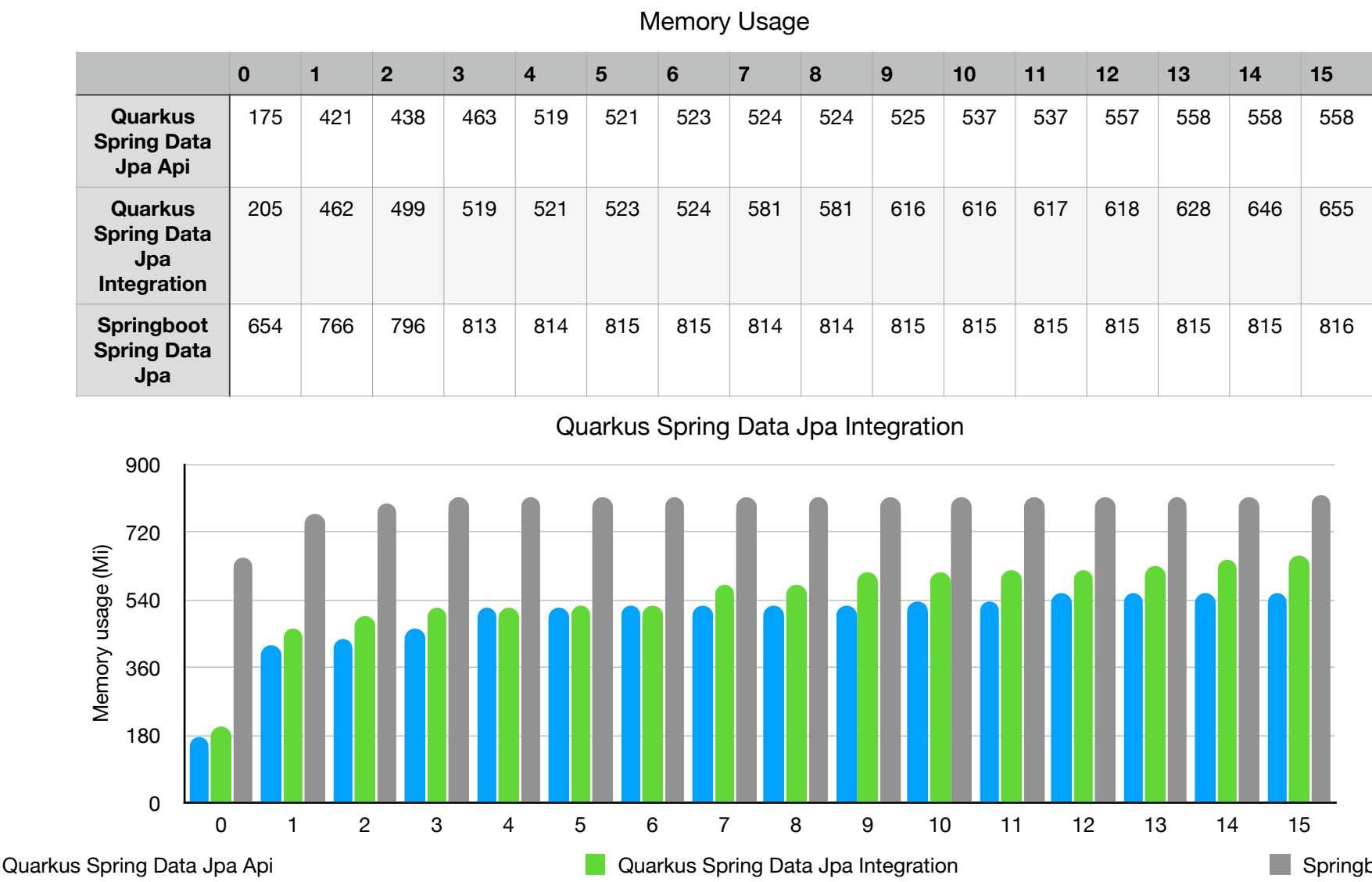
Benchmark - Resource usage:

Cpu usage (m)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Quarkus Spring Data Jpa Api	1	3999	4004	3993	3661	3131	3196	3715	3894	4000	3991	3994	3999	3985	3993	3997
Quarkus Spring Data Jpa Integration	1	3990	4001	3996	4000	4003	3999	3973	4004	4001	3996	3976	3989	3993	4003	4006
Springboot Spring Data Jpa	2	3996	4003	3997	3995	3993	3994	4001	3994	3984	3986	3977	3917	3735	3739	3535

Quarkus Spring Data Jpa Integration

Memory Usage

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Quarkus Spring Data Jpa Api	175	421	438	463	519	521	523	524	524	525	537	537	557	558	558	558
Quarkus Spring Data Jpa Integration	205	462	499	519	521	523	524	581	581	616	616	617	618	628	646	655
Springboot Spring Data Jpa	654	766	796	813	814	815	815	814	814	815	815	815	815	815	815	816

Quarkus Spring Data Jpa Integration

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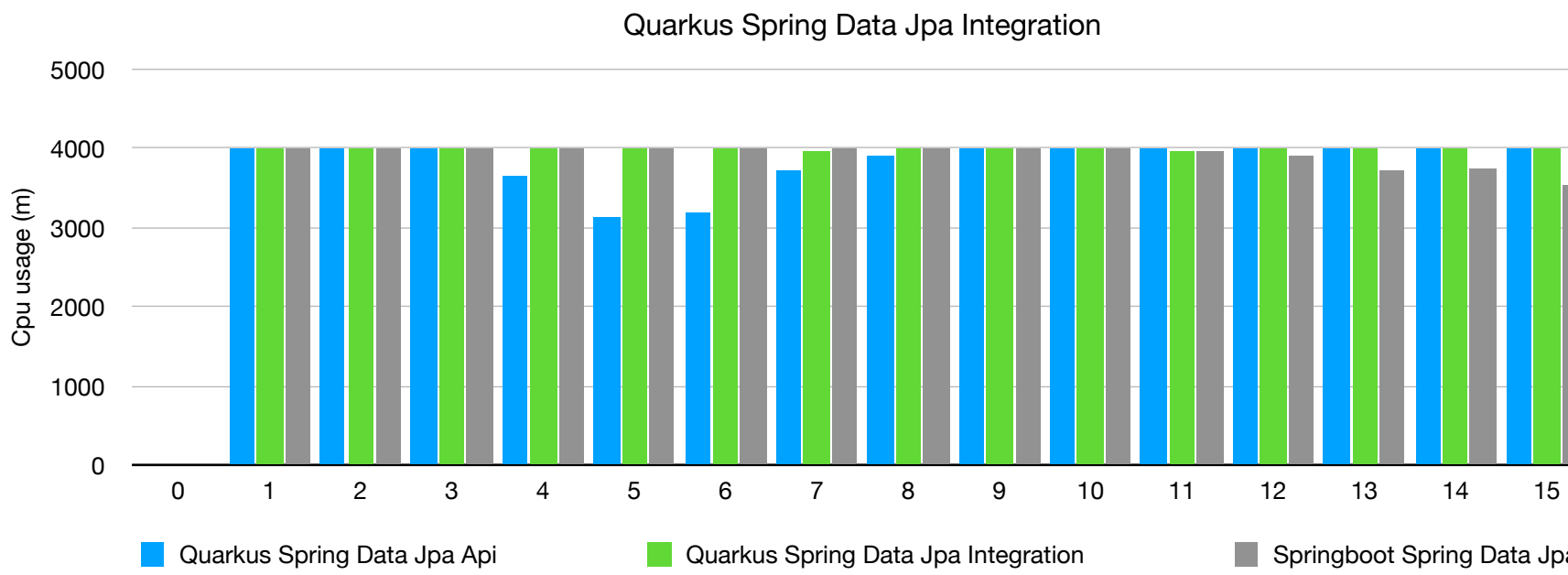- Springboot 2.3.1.RELEASE

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