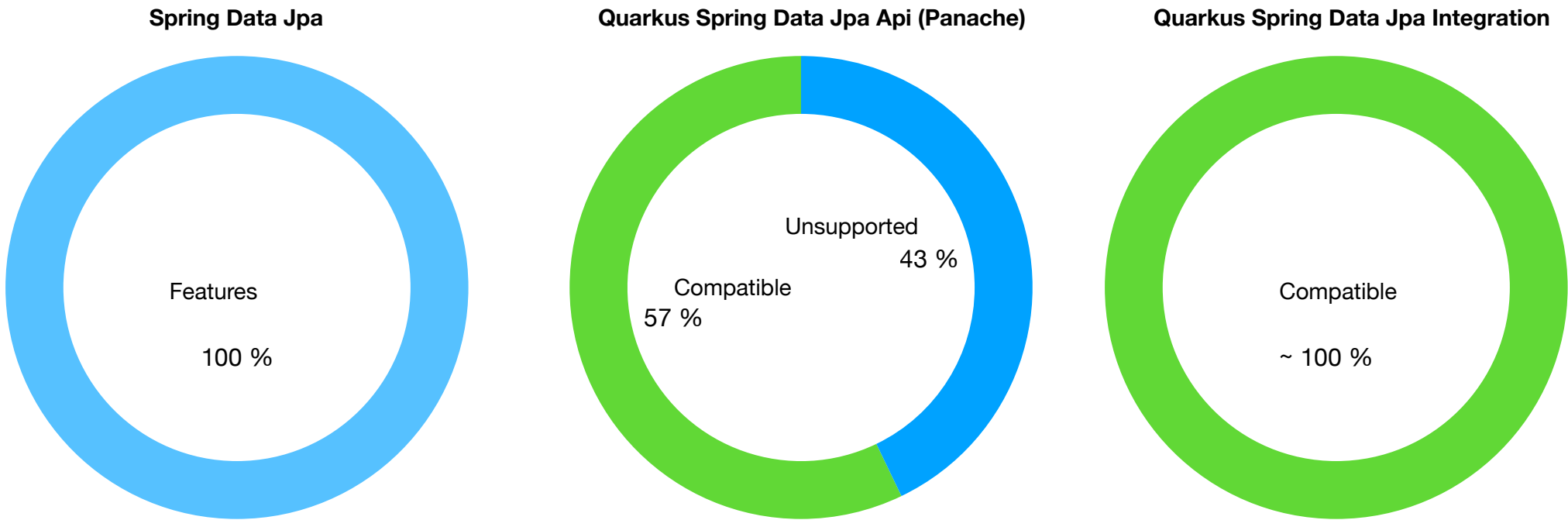


Comparison between Quarkus Spring Data Jpa Integration, Quarkus Spring Data Jpa Api Extension and Spring Data Jpa

Compatibility:



Spring Data Jpa Features

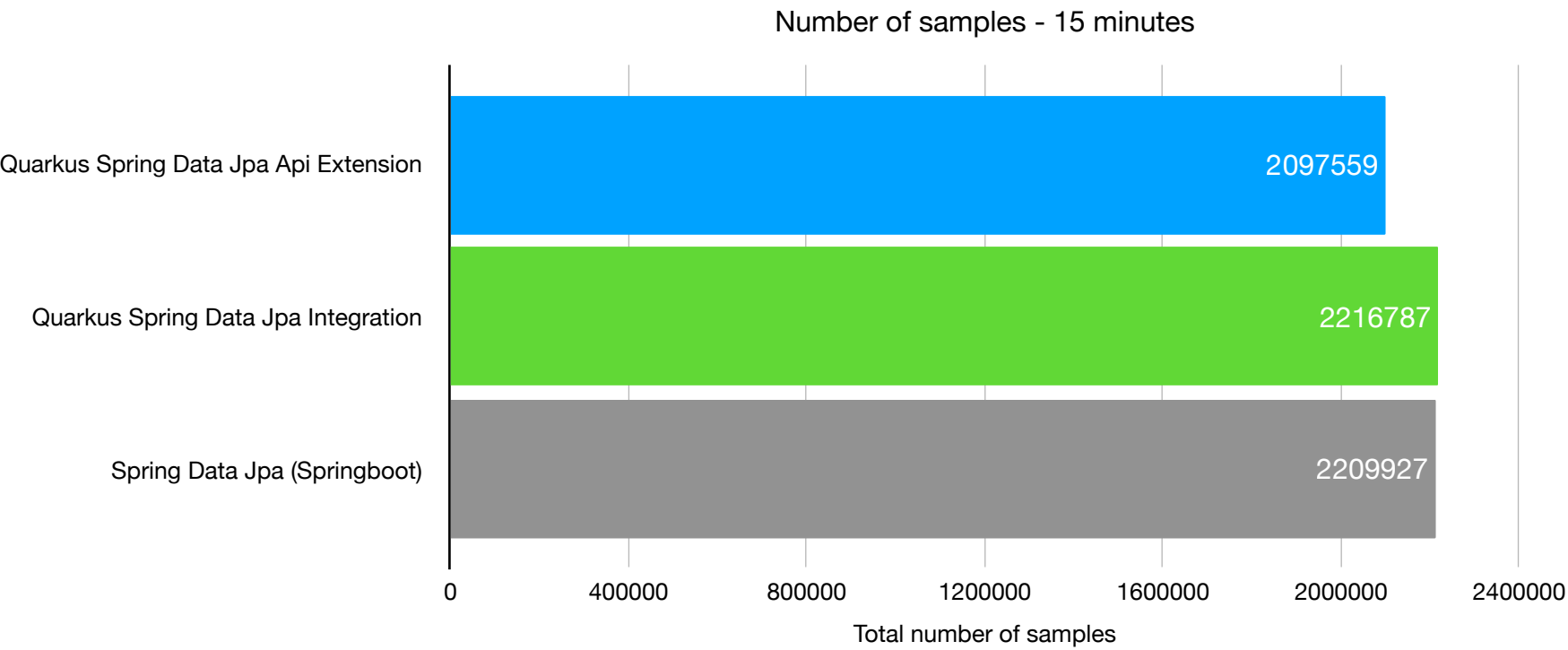
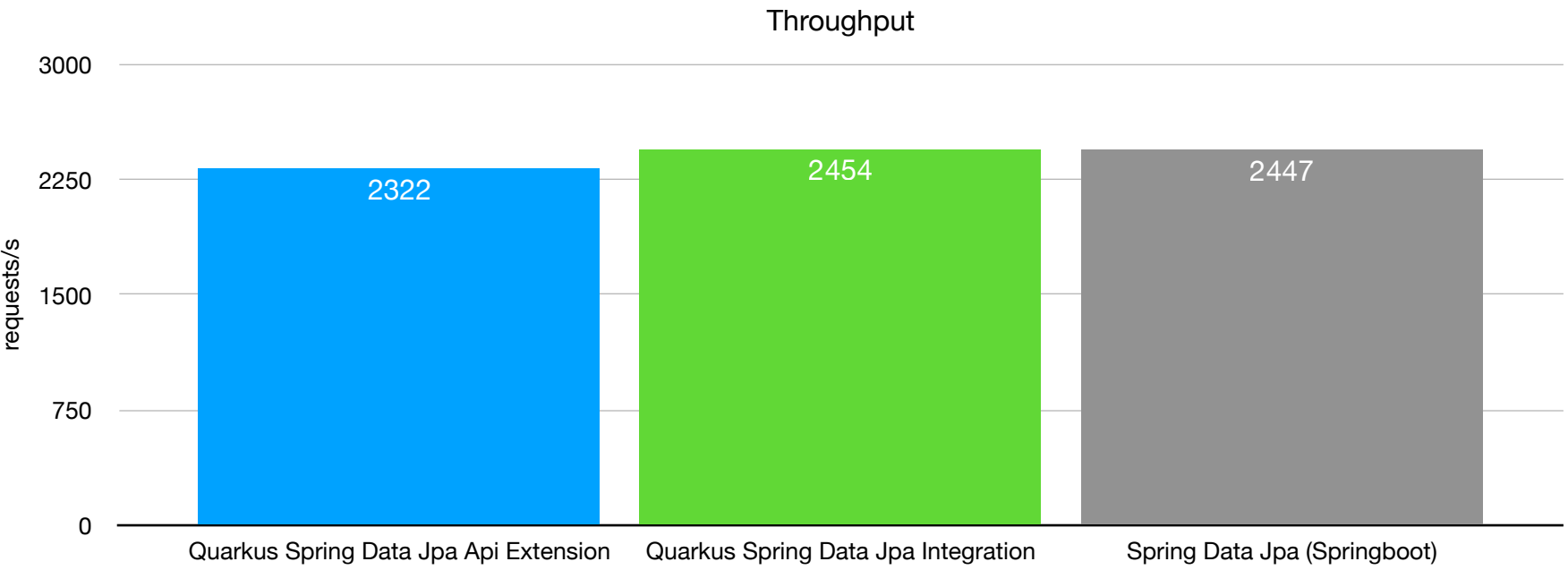
Feature	Quarkus Spring Data Jpa Api	Quarkus Spring Data Jpa Integration	Spring Data Jpa
CrudRepository interface	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PagingAndSortingRepository interface	<input checked="" type="checkbox"/>	<input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



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:

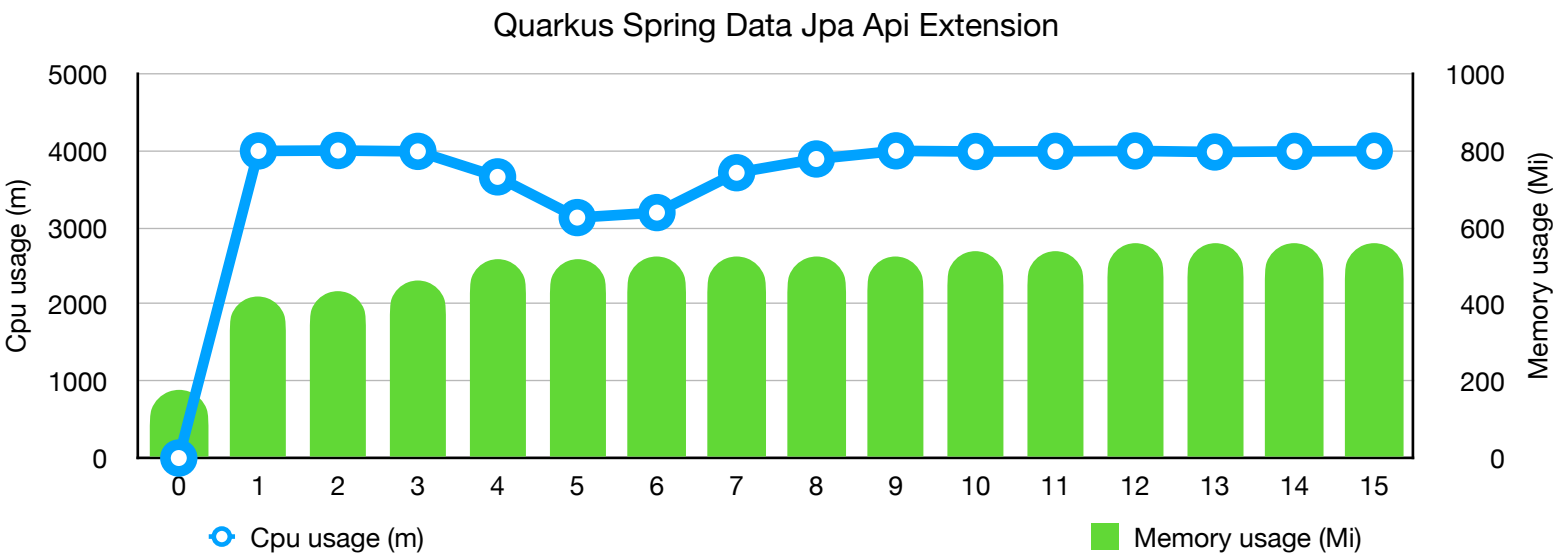
- Kubernetes v1.17
- Docker v18.6
- OS: linux
- architecture: amd64
- JDK 11
- capacity per node:
 - cpu: 8
 - memory: 14Gi
- deployment requests/limits:
 - cpu: 4
 - memory: 2Gi

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

Benchmark - Resource usage

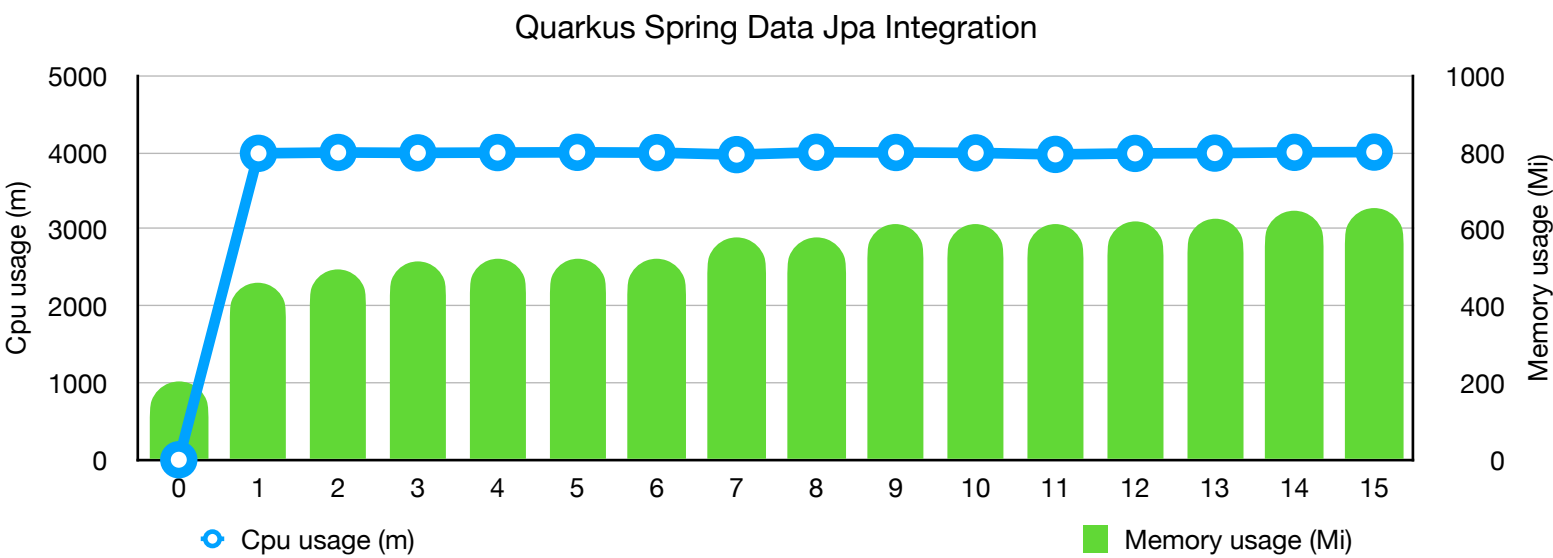
Quarkus Spring Data Jpa Api Extension

	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



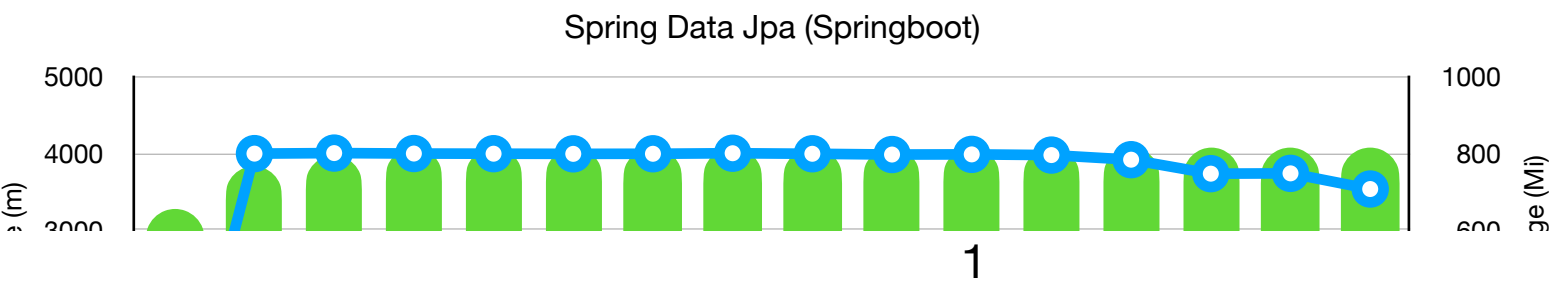
Quarkus Spring Data Jpa Integration

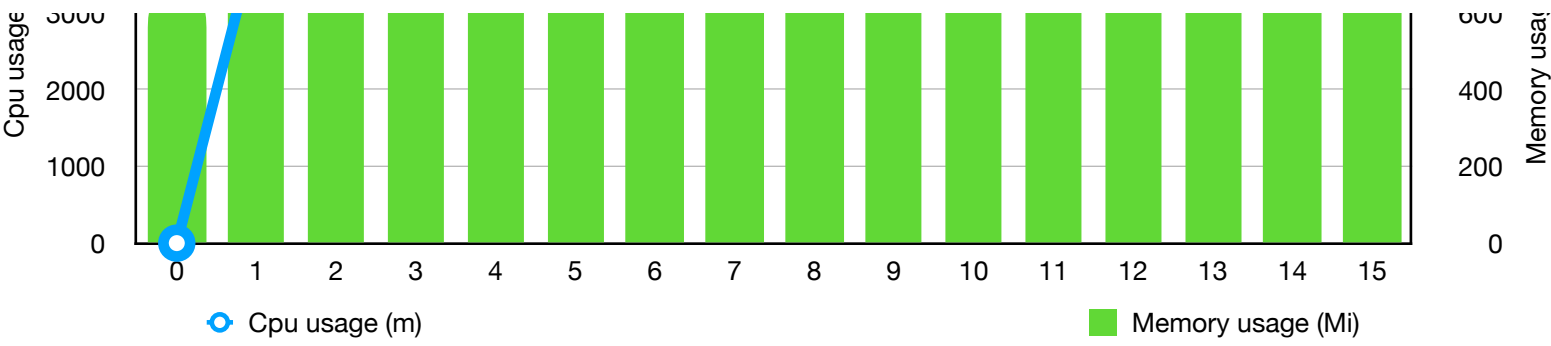
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cpu usage (m)	1	3990	4001	3996	4000	4003	3999	3973	4004	4001	3996	3976	3989	3993	4003	4006
Memory usage (Mi)	205	462	499	519	521	523	524	581	581	616	616	617	618	628	646	655



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





Load test details:

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- Quarkus Spring Data Jpa Integration v1.1
- Springboot 2.3.1.RELEASE

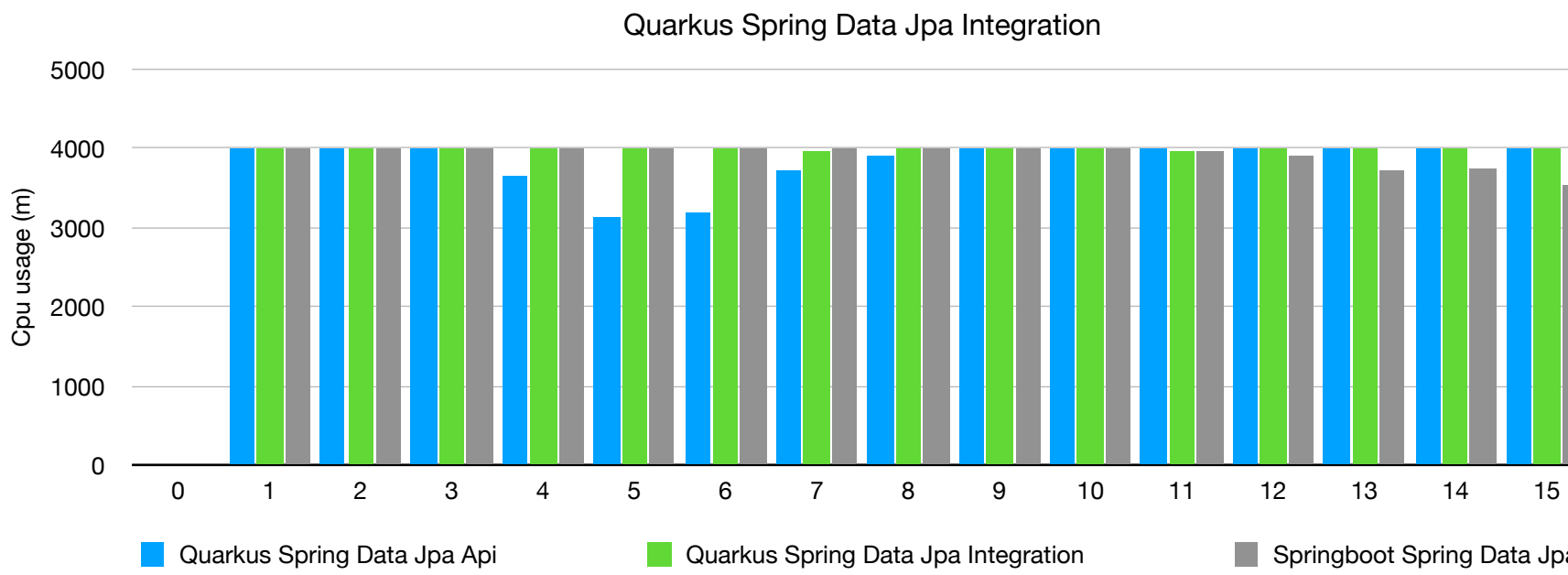
Test environment:

- 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

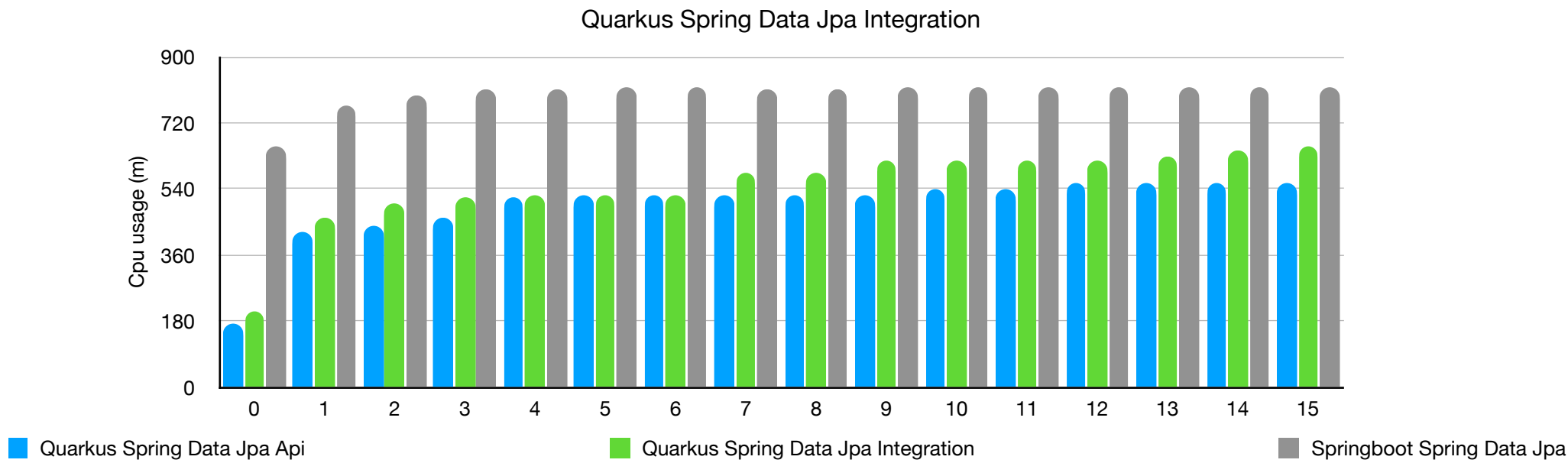
Comparison between Quarkus Spring Data Jpa Integration, Quarkus Spring Data Jpa Api Extension and Spring Data Jpa (Springboot)

Benchmark - Resource usage:

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



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



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