# Outline of Job Career and Key Performance Indicator

# (8) *Software Development*


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# Outline of Job Category

## Software Development


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# Outline of Software Development

| Job Category | Software Development | | |
|---|---|---|---|
| Specialty Field | Operating system | Middleware | Application Software |
| Level 7 | | | |
| Level 6 | | | |
| Level 5 | | | |
| Level 4 | | | |
| Level 3 | | | |
| Level 2 | | | |
| Level 1 | | | |

## Description of Job Category

Performs planning, specification determination, design, and development of software products accepted in the market, based on marketing strategy, utilizing software engineering technologies. Performs planning and consultation on business strategy related to software products in higher levels. Has responsibility for functionality, reliability and etc. of developed software products,

This job category is classified into the following specialty fields.

- **Operating system**
  Provides basic functions by utilizing their hardware specialty. Performs design, development, customization and technical support on operating system controlling the whole computer systems.

- **Middleware**
  Performs design, development, customization and technical support on platform-independent software that provides functions such as database management, transaction processing functions and distributed object environment.

- **Application software**
  Performs design, development and technical support on software that supports business transformation, business process improvement and work efficiency using information system for a certain purpose or in a certain area such as application packages (including ERP and CRM) and office suite.


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# Key Performance Indicator

## Software Development


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# Key Performance Indicator: Software Development

| Specialty Field | Operating System | Level 6 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Leads development team and has responsibility for the whole process of development, as a person responsible for products development in planning, design, development, customization, and technical support related to operating system. Has experience and performance in achieving project success in development of operating system product to satisfy the designed quality goal (functionality, reliability, and etc.) three times or more (At least one project must meet the complexity and size of Level 6, and others can be of the Level 5 or more)

### ●Complexity

Has experience and performance of achieving success in operating system development project with advanced architecture with following two or more complexity criteria.

□ Implementation of all functional requirements, and maximum use of hardware/OS performance
□Promotion of development spread across multiple development sites
□ Realization of the high operability, robustness, and reliability available as a basic system for a company
□500 or more interfaces

### ●Size

Has experience and performance of achieving success in operating system product development with following size

□ Development team with 15 persons or more during peak periods, and with development period of 1 year or more

## [Professional Contribution]

-Has the high specialty in either one of the following main themes for product development of operating systems sufficient to guide others and contributes to the industry.

□Planning of product-related business strategy
□Planning, design, development, customization, and technical support for software products
□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in four items or more of following expertise succession.

□Activities in professional community such as academic society and committee
□Publication of a book
□Publication of a paper outside the company
□Publication of a paper within the company
□Instructor outside the company
□Instructor within the company
□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)


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# Key Performance Indicator: Software Development

| Specialty Field | Operating System | Level 5 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Leads development team and has responsibility for the whole process of development, as a person responsible for products development of planning, design, development, customization, and technical support related to operating system. Has experience and performance in achieving project success in development of operating system product to satisfy the designed quality goal (functionality, reliability, and etc.) three times or more (At least one project must meet the complexity and size of Level 5, and others can be of the Level 4 or more)

### ●Complexity

Has experience and performance of achieving success in operating system development project with implementation of advanced architecture, with following two or more complexity criteria.

□Implementation of all functional requirements, maximum use of hardware/OS performance
□Development promotion spread across multiple development sites
□Realization of the high operability, robustness, and reliability available as a basic system of a company
□Approximately 100 – 500 interfaces

### ●Size

Has experience and performance of achieving success in operating system product development with following size

□ Development team with 5 or more but less than 15 persons during peak periods, and development period of 6 months or more but less than one year

## [Professional Contribution]

-Has the high specialty in either one of the main themes for following operating system product development area sufficient to guide others and contributes to the company.

□Planning of product-related business strategy
□Planning, design, development, customization, and technical support for software products
□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in three items or more of following expertise succession.

□Activities in professional community such as academic society and committee
□Publication of a book
□Publication of a paper outside the company
□Publication of a paper within the company
□Instructor outside the company
□Instructor within the company
□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)


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# Key Performance Indicator: Software Development

| Specialty Field | Operating System | Level 4 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Has responsibility for the assigned part of development, as a leader of products development team for planning, design, development, customization, and technical support related to operating system. Has experience and performance of achieving success in development of operating system product that satisfies the designed quality goal (functionality, reliability, and etc.) two times or more (At least one project must meet the complexity and size of Level 4, and others can be of the Level 3 or more)

### ●Complexity

Has experience and performance of achieving success in operating system development project with implementation of advanced architecture, with following two or more complexity criteria.

□Balanced Implementation of the functional requirements and performance of hardware/OS, and etc
□Development promotion at single development site
□Requirements of high-level operability, solidity, and reliability
□Less than 100 interfaces

### ●Size

Has experience and performance of achieving project success in operating system product development with following size

□ Development team with 5 or more but less than 15 persons during peak periods, and development period of less than 6 months

## [Professional Contribution]

-Has the high specialty in either one of the main themes for following operating system product development area sufficient to guide subordinates.

□Design, development, customization, and technical support for software products

□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time□

-Has achievements in one item or more of following expertise succession.

□Activities in professional community such as academic society and committee
□Publication of a book
□Publication of a paper outside the company
□Publication of a paper within the company
□Instructor outside the company
□Instructor within the company
□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)


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# Key Performance Indicator: Software Development

| Specialty Field | Operating System | Level 3 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Has responsibility for the assigned part of development, as a member of products development team for planning, design, development, customization, and technical support related to operating system. Has experience and performance of achieving success in development of operating system product that satisfies the designed quality goal (functionality, reliability, and etc.) once or more (Projects must meet the complexity and size of Level 3)

### ●Complexity

Has experience and performance of achieving project success in middleware product development with implementation of advanced architecture, with following two or more complexity criteria.

□Balanced Implementation of the functional requirements and performance of hardware/OS, and etc

□Requirements of high-level operability, solidity, and reliability

□Development promotion at single development site

□Less than 100 interfaces

### ●Size

Has experience and performance of achieving project success in operating system product development regardless of size

## [Professional Contribution]

-Has the high specialty in either one of the main themes for following operating system product development area to perform assigned task by him/her-self

□Development, customization, and technical support for software products

□Completion by the set-up shipment time

□Assurance of quality(functionality, reliability, and etc.) to fulfill the shipment standard

## 〈Remarks〉

-By passing Applied ITEE (Information Technology Engineer Examination), individuals are regarded as attaining the minimum capability required in ITSS level 3.



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# Key Performance Indicator: Software Development

| Specialty Field | Middleware | Level 6 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Leads development team and has responsibility for the whole process of development, as a person responsible for products development in planning, design, development, customization, and technical support related to Middleware. Has experience and performance of achieving project success in development of middleware product to satisfy the designed quality goal (functionality, reliability, and etc.) three times or more (At least one project must meet the complexity and size of Level 6, and others can be of the Level 5 or more)

### ●Complexity

Has experience and performance of achieving success in middleware product development project with implementation of advanced architecture, with following two or more complexity criteria.

□Implementation of all functional requirements, maximum use of OS performance

□ Realization of the high operability, robustness, and reliability available as a basic system for a company

□Development Promotion spread across multiple development sites

□500 or more interfaces

### ●Size

Has experience and performance of achieving success in middleware product development with following size

□ Development team with 15 persons or more during peak periods, and development period of one year or more

## [Professional Contribution]

-Has the high specialty in either one of the following main themes for middleware product development area sufficient to guide others and contributes to the industry.

□Planning of product-related business strategy

□Planning, design, development, customization, and technical support for software products

□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in four items or more of following expertise succession.

□Activities in professional community such as academic society and committee

□Publication of a book

□Publication of a paper outside the company

□Publication of a paper within the company

□Instructor outside the company

□Instructor within the company

□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)



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# Key Performance Indicator: Software Development

| Specialty Field | Middleware | Level 5 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Leads development team and has responsibility for the whole process of development, as a person responsible for products development in planning, design, development, customization, and technical support related to Middleware. Has experience and performance in achieving project success in development of middleware product that satisfies the designed quality goal (functionality, reliability, and etc.) three times or more (At least one project must meet the complexity and size of Level 6, and others can be of the Level 5 or more)

### ●Complexity

Has experience and performance of achieving success in middleware product system development project with implementation of advanced architecture with following two or more complexity criteria.

□ Implementation of all functional requirements, maximum use of hardware/OS performance

□ Realization of the high operability, robustness, and reliability available as a basic system for a company

□Development promotion spread across multiple development sites

□Approximately 100 – 500 interfaces

### ●Size

Has experience and performance of achieving project success in middleware product development with following size

□ Development team with 5 or more but less than 15 persons during peak periods, and development period of 6 months or more but less than one year

## [Professional Contribution]

-Has the high specialty in either one of the following main themes for middleware product development area sufficient to guide others and contributes to the industry.

□Planning of product-related business strategy

□Planning, design, development, customization, and technical support for software products

□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in three items or more of following expertise succession.

□Activities in professional community such as academic society and committee

□Publication of a book

□Publication of a paper outside the company

□Publication of a paper within the company

□Instructor outside the company

□Instructor within the company

□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)



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# Key Performance Indicator: Software Development

| Specialty Field | Middleware | Level 4 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Has responsibility for the assigned part of development, as a leader of products development team in planning, design, development, customization, and technical support related to middleware. Has experience and performance of achieving project success in development of middleware product to satisfy the designed quality goal (functionality, reliability, and etc.) two times or more (At least one project must meet the complexity and size of Level 4, and others can be of the Level 3 or more)

### ●Complexity

Has experience and performance of achieving success in middleware product development project with implementation of advanced architecture, with following two or more complexity criteria.

□Balanced implementation of the functional requirements and performance of operating system and etc

□Development promotion at single development site

□Requirements of high-level operability, solidity, and reliability

□Less than 100 interfaces

### ●Size

Has experience and performance of achieving project success in middleware product development with following size

□A development team with 5 or more but less than 15 persons during peak periods, and development period of less than 6 months.

## [Professional Contribution]

-Has the high specialty in either one of the following main themes for middleware product development area sufficient to guide subordinates.

□Design, development, customization, and technical support for software products

□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in one or more items of following expertise succession.

□Activities in professional community such as academic society and committee

□Publication of a book

□Publication of a paper outside the company

□Publication of a paper within the company

□Instructor outside the company

□Instructor within the company

□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc)



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# Key Performance Indicator: Software Development

| Specialty Field | Middleware | Level 3 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Has responsibility for the assigned part of development, as a member of products development team for planning, design, development, customization, and technical support related to middleware. Has experience and performance of achieving success in development of middleware product to satisfy the designed quality goal (functionality, reliability, and etc.) once or more (Projects must meet the complexity and size of Level 3)

### ●Complexity

Has experience and performance of achieving success in middleware product development project with implementation of advanced architecture, with following two or more complexity criteria.

□Balanced implementation of the functional requirements and performance of operating system and etc

□Requirements of high-level operability, solidity, and reliability

□Development promotion at single development site

□Less than 100 interfaces

### ●Size

Has experience and performance of achieving project success in middleware product development regardless of size

## [Professional Contribution]

-Has the high specialty in either one of the main themes for following middleware product development area to perform assigned task by him/her-self

□Development, customization, and technical support for software products

□Completion by the set-up shipment time

□Assurance of quality(functionality, reliability, and etc.) to fulfill the shipment standard

### 〈Remarks〉

-By passing Applied ITEE (Information Technology Engineer Examination), individuals are regarded as attaining the minimum capability required in ITSS level 3.



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# Key Performance Indicator: Software Development

| Specialty Field | Application Software | Level 6 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Leads development team and has responsibility for the whole process of development, as a person responsible for products development in planning, design, development, customization, and technical support related to application software. Has experience and performance of achieving project success in development of application software product to satisfy the designed quality goal (functionality, reliability, and etc.) three times or more (At least one project must meet the complexity and size of Level 6, and others can be of the Level 5 or more)

### ●Complexity

Has experience and performance of achieving project success in application software product development with implementation of advanced architecture, with following two or more complexity criteria.

□ Implementation of all functional requirements, maximum use of OS performance

□ Realization of the high operability, robustness, and reliability available as a basic system for a company

□ Development Promotion spread across multiple development sites

□500 or more interfaces

### ●Size

Has experience and performance of achieving project success in application software product development with following size

□ Development team with 15 persons or more during peak periods, and development period of 1 year or more

## [Professional Contribution]

-Has the high specialty in either one of the following main themes for application software product development area sufficient to guide others and contributes to the industry.

□Planning of product-related business strategy

□Planning, design, development, customization, and technical support for software products

□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in four items or more of following expertise succession.

□Activities in professional community such as academic society and committee

□Publication of a book

□Publication of a paper outside the company

□Publication of a paper within the company

□Instructor outside the company

□Instructor within the company

□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)



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# Key Performance Indicator: Software Development

| Specialty Field | Application Software | Level 5 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Leads development team and has responsibility for the whole process of development, as a person responsible for products development in planning, design, development, customization, and technical support related to application software. Has experience and performance of achieving project success in development of application software product to satisfy the designed quality goal (functionality, reliability, and etc.) three times or more (At least one project must meet the complexity and size of Level 5, and others can be of the Level 4 or more)

### ●Complexity

Has experience and performance of achieving project success in application software product development with implementation of advanced architecture, with following two or more complexity criteria.

□ Implementation of all functional requirements, maximum use of OS performance

□ Development Promotion spread across multiple development sites

□ Realization of the high operability, robustness, and reliability available as a basic system for a company

□ Approximately 100 - 500 interfaces

### ●Size

Has experience and performance of achieving project success in application software product development with following size

□ Development team with 5 or more but less than 15 persons during peak periods, and development period of 6 or more months but less than 1 year

## [Professional Contribution]

-Has the high specialty in either one of the following main themes for application software product development area sufficient to guide others and contributes to the company.

□Planning of product-related business strategy

□Planning, design, development, customization, and technical support for software products

□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in three items or more of following expertise succession.

□Activities in professional community such as academic society and committee

□Publication of a book

□Publication of a paper outside the company

□Publication of a paper within the company

□Instructor outside the company

□Instructor within the company

□Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)



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# Key Performance Indicator: Software Development

| Specialty Field | Application Software | Level 4 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Has responsibility for the assigned part of development, as a leader of products development team in planning, design, development, customization, and technical support related to application software. Has experience and performance of achieving project success in development of application software product to satisfy the designed quality goal (functionality, reliability, and etc.) two times or more (At least one project must meet the complexity and size of Level 4, and others can be of the Level 3 or more)

### ●Complexity

Has experience and performance of achieving success in application software development project with implementation of advanced architecture, with following two or more complexity criteria.

□Balanced Implementation of the functional requirements and performance of hardware/OS, and etc

□Requirements of high-level operability, solidity, and reliability

□ Development promotion at single development site

□ Less than 100 interfaces

### ●Size

Has experience and performance of achieving project success in application software product development with following size

□ Development team with 5 or more but less than 15 persons during peak periods, and development period with less than 6 months

## [Professional Contribution]

-Has the high specialty in either one of the following main themes for application software product development area sufficient to guide subordinates

□Design, development, customization, and technical support for software products

□Assurance of software product quality (functionality, reliability and etc.) by the set-up shipment time

-Has achievements in one or more items of following expertise succession.

□Activities in professional community such as academic society and committee □Publication of a book □Publication of a paper outside the company

□Publication of a paper within the company □Instructor outside the company □Instructor within the company □Filing of a patent application

-Develops subordinates (by mentoring, coaching, and etc.)



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# Key Performance Indicator: Software Development

| Specialty Field | Application Software | Level 3 |
|---|---|---|

## [Business Contribution]

### ●Responsibilities

Has responsibility for the assigned part of development, as a member of products development team in planning, design, development, customization, and technical support related to application software. Has experience and performance of achieving project success in development of application software product to satisfy the designed quality goal (functionality, reliability, and etc.) once or more (Projects must meet the complexity and size of Level 3)

### ●Complexity

Has experience and performance of achieving project success in application software product development with implementation of advanced architecture with following two or more complexity criteria.

□Balanced Implementation of the functional requirements and performance of hardware/OS, and etc

□Requirements of high-level operability, solidity, and reliability

□Development promotion at single development site

□Less than 100 interfaces

### ●Size

Has experience and performance of participating in application software product development project regardless of size.

## [Professional Contribution]

-Has the high specialty in either one of the main themes for following application software product development area to perform assigned task by him/her-self

□Development, customization, and technical support for software products

□Completion by the set-up shipment time

□Assurance of quality(functionality, reliability, and etc.) to fulfill the shipment standard

## 〈Remarks〉

-By passing Applied ITEE (Information Technology Engineer Examination), individuals are regarded as attaining the minimum capability required in ITSS level 3



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