

KPA Master Development Kit (MDK) for EtherCAT enables OEMs to configure Master functionality. The MDK is available for ARM-, ppc- or x86- hardware platform and any of the following operating systems (OS):

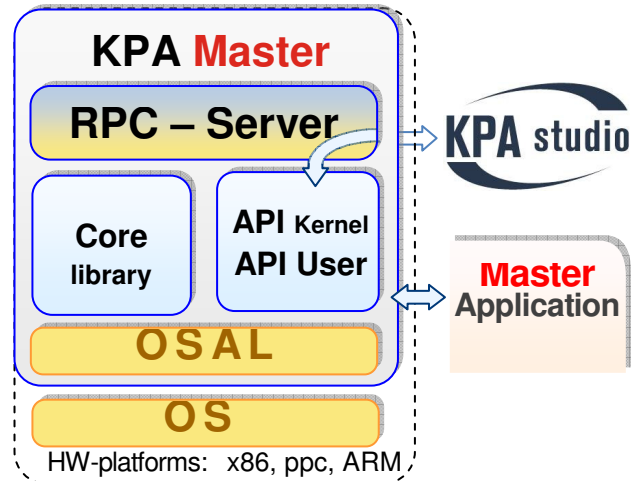


The MDK consists out of six parts:

## 1. Master integration package (MIP)

EtherCAT Master, OS-, HW-dependent libraries

- Remote Procedure Call (RPC) Server for connecting several remote clients with console application
- **Master Core** and **API** depending on OS for Kernel space with IoDev
- "C"-Headers of RPC, Master Core and API library
- Setup - sample and documentation
- More than 15 samples in source code with description
- Several documents:
  - o Master architecture (white paper)
  - o MDK Manual
  - o API (Application Programming Interface) help



## 2. Operating System Abstraction Layer (OSAL) \*).

EtherCAT transport layer, Ethernet tunneling over EtherCAT, timer, memory, protection. Three master threads for cyclic, mailbox and auto recovery.:

All delivered as source code. By this user can adapt to new versions of operating systems or new operating systems. The document "How to adapt to other OS" is showing this.

## 3. MDK Tutorials

- How to install KPA EtherCAT Master for OS
- How to generate and apply license for KPA EtherCAT Master for OS.
- How to generate and apply license for KPA EtherCAT Studio
- How to run KPA EtherCAT Studio with Master on OS
- How to configure "Distributed Clocks" functionality with slave as reference
- How to use "Hot-Connect" functionality
- ....

## 4. Master Runtime package (MRP) with licenses \*)

Binaries and one license "Full" allowing using following master classes: "Basic", "Standard", "Premium" and "Full".

Additionally provided are two licenses for Master Standard Included are licensing utility with documentation and "What is new?"

## 5. EtherCAT Studio executables with licenses \*)

KPA EtherCAT Studio Full with all Plug-ins for configuration and diagnostics, setup and license.

## 6. Support and Maintenance (S&M) with separate contract \*)

- Technical support and update of OS and EtherCAT for two years
- Prolongation on annual base

\*) in trial version: no OSAL, no S&M and trial licenses only

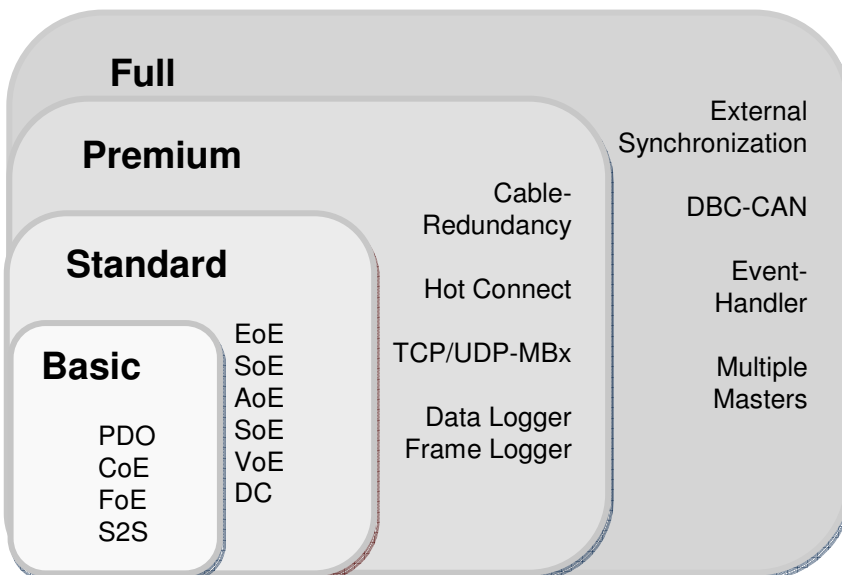
## 2. Comparison MDK with MDK trial

Item	Criteria	MDK 71xx vvvh	MDK trial 72xx vvvh
0	Usage	Development	Evaluation
1	Master Integration Package (MIP)	X	X
2	OSAL as source code <sup>3)</sup>	X	-
3	MDK Tutorials	X	X
4	Master Run Package (MRP) Full	X	Trial 1)
	Licenses for Master Full	1	-
	Licenses for Master Standard	2	
5	KPA EtherCAT Studio Full	X	Trial 2)
	Licenses for Studio Full 7010 0030	X	-
6	Support & Maintenance contract <sup>3)</sup>		-
	7199 0000 part of MDK	X	-
	7199 0001 prolongation	After 2 <sup>nd</sup> year	-

Items 1-4 are OS dependent

- 1) Trial Master works for one hour in OPERATIONAL and cannot be licensed.
- 2) Trial Studio has ENI-size limited to 1.000kB.
- 3) For S&M-and Source code-contract please ask [sales@koenig-pa.de](mailto:sales@koenig-pa.de)

## 3. Master classes



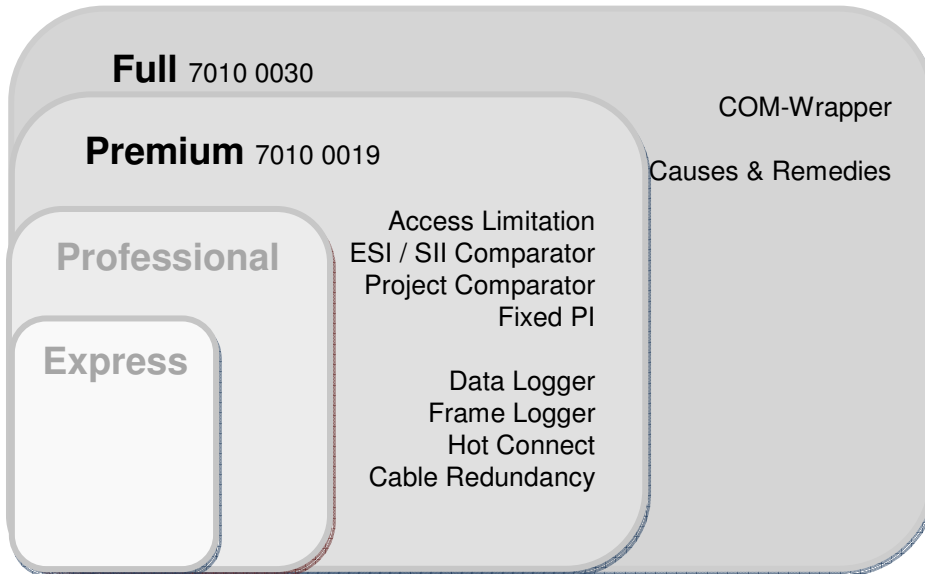
Full exceeds Premium by selectable Feature Packs and Extensions.

KPA Names	Basic	Standard*
ETG.1500, Version 1.0.0	Class B	Class A
<b>Basic Features</b>		
Service Commands	✓	✓
Slaves with Device Emulation	✓**	✓**
EtherCAT State Machine	✓	✓
Error Handling	✓	✓
EtherCAT Frame Types	✓	✓
<b>Process Data Exchange</b>		
Cyclic PDO	✓	✓
Multiple Tasks = Leveling	✓	✓
<b>Network Configuration</b>		
Reading ENI	✓	✓
Compare Network configuration	✓	✓
Access to EEPROM	✓	✓
Access to Memory	✓	✓
<b>Mailbox Support</b>		
Support Mailbox	✓	✓
Mailbox polling	✓	✓
<b>CoE</b>		
SDO Up/Download	✓	✓
Segmented Transfer	✓	✓
Complete Access	✓	✓
SDO Info Service	✓	✓
Emergency Messages	✓	✓
<b>EoE</b>		
EoE Protocol	✓	✓
Virtual Switch	✓	✓
<b>FoE</b>		
FoE Protocol	✓	✓
Firmware Up/Download	✓	✓
Boot State	✓	✓
<b>SoE</b>		
<b>AoE</b>		
<b>VoE</b>		
<b>Synchronization with Distributed Clock (DC)</b>		
DC Support	✓	✓
Continuous Propagation Delay compensation		✓
Time Distribution	✓	✓
Synchronization of Master with Slaves		✓
<b>Slave-to-Slave Communication</b>		
Necessary for FSoE configuration via ENI or via API	✓	✓

\* applies also for KPA Master Class Premium and Full

\*\*not a Master feature: is supported by mean of Init commands generated by Studio

## 4. Studio classes



Other versions than Premium and Full can be customized by using Studio Development Framework for customisation (SDF-C).

### MDK

Plattform	Part number	Name	Version
x86	71064010	MDK x86. [INtime 401]	4.01 and 4.2
	71052090	MDK x86. [RTX 209] [available:1Q/2012]	
	71052110	MDK x86. [RTX 211] [available:1Q/2012]	
	71076330	MDK x86. [Linux Posix rt-preempt user 633]	6.33
	71106500	MDK x86. [QNX 650] [available:1Q/2012]	6.5
	71116000	MDK x86. [CE 600]	6.0
	71091000	MDK x86. [XP-Vista 100]	XP, Vista
	71136820	MDK x86. [VxWorks 682] [available:1Q/2012]	6.8.2
	71026330	MDK x86. [Xenomai] [available:1Q/2012]	2.6.33
ppc	71106501	MDK ppc [QNX 650] [available:1Q/2012]	6.5
ARM	71076332	MDK ARM. [Linux Posix rt-preempt user 633]	6.33

### Licenses

Part number	Name	Comment
700c 00os	KPA Master EtherCAT	C1-5: 1=Basic, 2= Standard, 3= Premium, 5= Full
7020 00fp +)	KPA Master Feature Packs/Extensions (RT)	fp = Feature Pack / Extension number: 1-f