

Documentation | EN

# Industrial PCs for the XPlanar system





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## 1 General Information

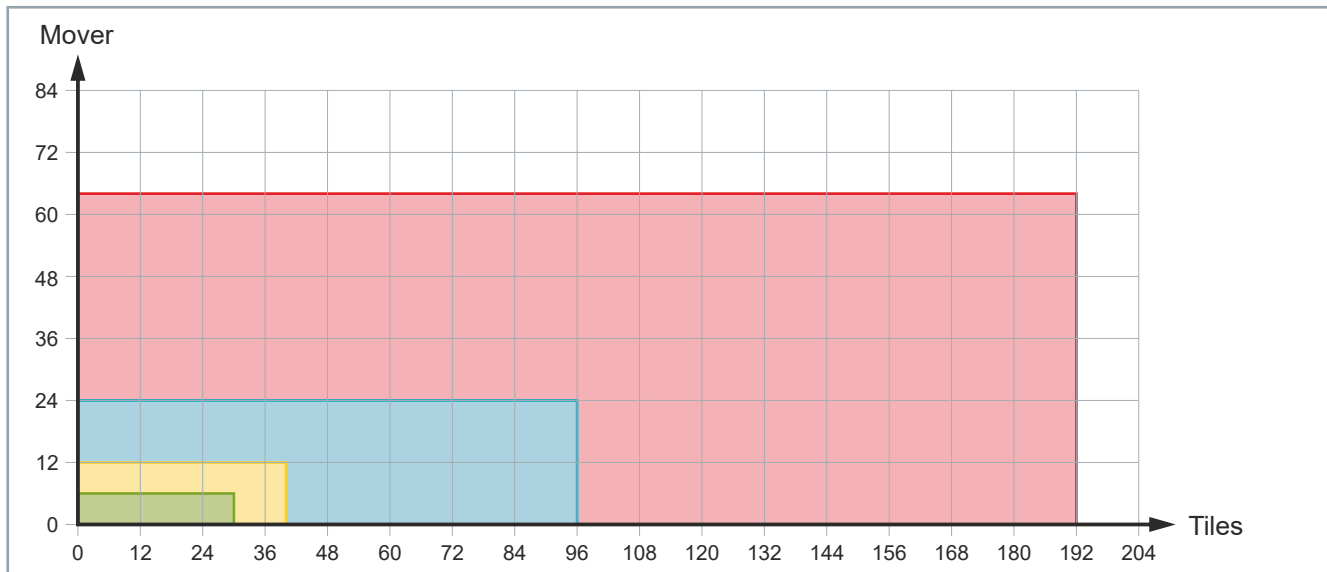






### Use of specific configurations

Due to the special real-time requirements of an XPlanar system, Beckhoff recommends the Industrial PC configurations listed in this document.

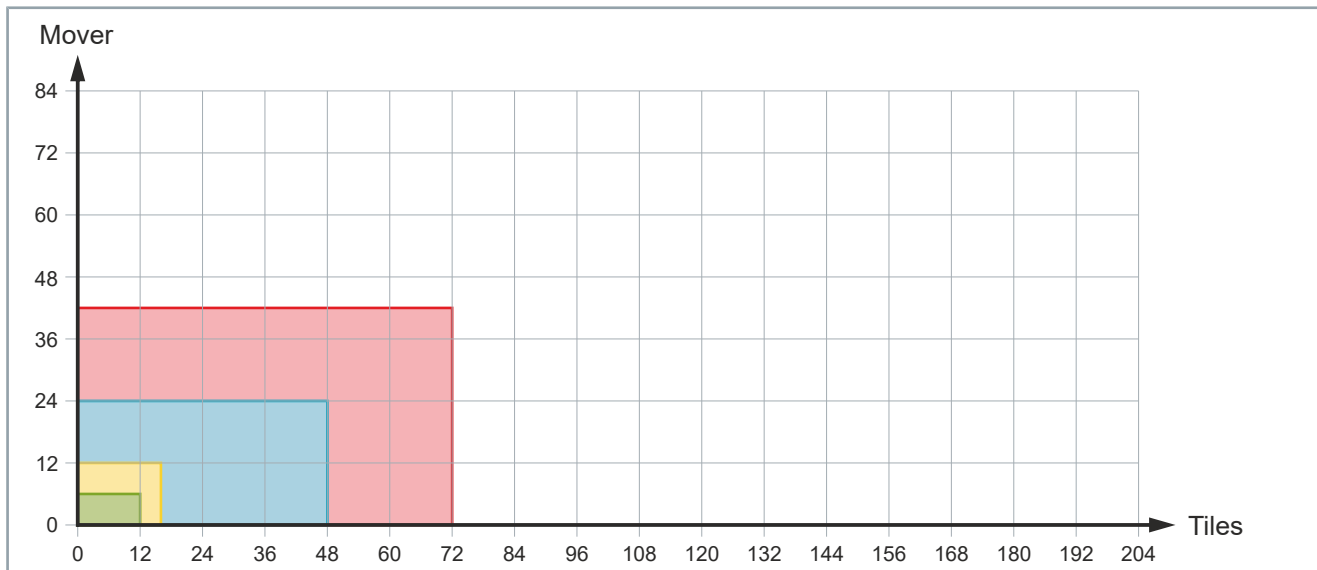
### 1.1 Overview of recommended Industrial PCs





APS4322-0000



<b>●●● C6032-0080 with 6 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000681022
	Further information can be found in chapter "C6032-0080 with 6 cores", [Page 9].	
<b>●●● C6032-0080 with 8 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000653943
	Further information can be found in chapter "C6032-0080 with 8 cores", [Page 12].	
<b>●●● C6670-0020 2 x 12 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000653040
	Further information can be found in chapter "C6670-0020 with 2 x 12 cores", [Page 15].	
<b>●●● C6670-0020 2 x 32 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000628236
	Further information can be found in chapter "C6670-0020 with 2 x 32 cores", [Page 18].	

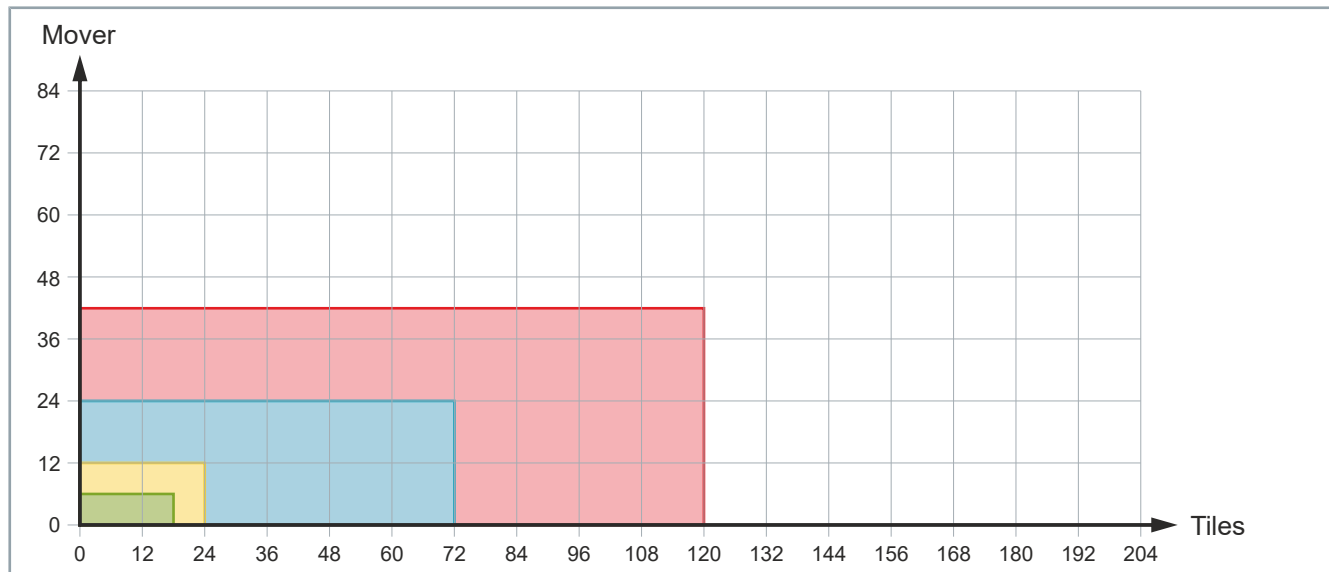
APS4244-1x00







● ● ● C6032-0080 with 6 cores		Regular delivery
	Configuration number with license	000681022
	Further information can be found in chapter "C6032-0080 with 6 cores", [Page 9].	
● ● ● C6032-0080 with 8 cores		Regular delivery
	Configuration number with license	000653943
	Further information can be found in chapter "C6032-0080 with 8 cores", [Page 12].	
● ● ● C6670-0020 2 x 12 cores		Regular delivery
	Configuration number with license	000653040
	Further information can be found in chapter "C6670-0020 with 2 x 12 cores", [Page 15].	
● ● ● C6670-0020 2 x 32 cores		Regular delivery
	Configuration number with license	000628236
	Further information can be found in chapter "C6670-0020 with 2 x 32 cores", [Page 18].	

# General Information











## APS4242-1x00 and APS4224-1x00



<b>● ● ● C6032-0080 with 6 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000681022
	Further information can be found in chapter "C6032-0080 with 6 cores", [Page 9].	
<b>● ● ● C6032-0080 with 8 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000653943
	Further information can be found in chapter "C6032-0080 with 8 cores", [Page 12].	
<b>● ● ● C6670-0020 2 x 12 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000653040
	Further information can be found in chapter "C6670-0020 with 2 x 12 cores", [Page 15].	
<b>● ● ● C6670-0020 2 x 32 cores</b>		<b>Regular delivery</b>
	Configuration number with license	000628236
	Further information can be found in chapter "C6670-0020 with 2 x 32 cores", [Page 18].	

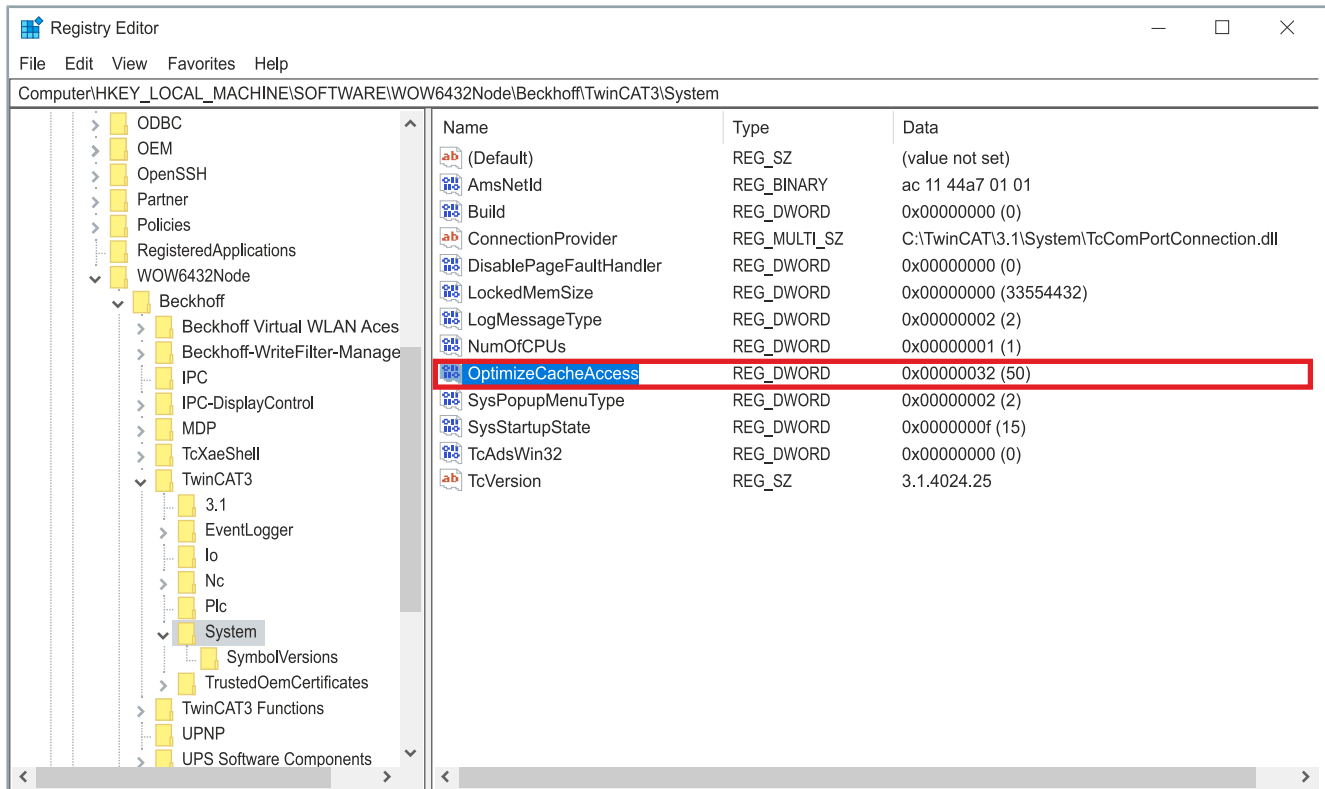
## 1.2 Overview Operating Systems

By default, the Industrial PCs and CX configurations are delivered with a Windows image. TwinCAT/BSD and Linux® are available for selected configurations.

Industrial PC	TwinCAT/BSD	Windows 10	Windows 11	Linux®
 C6032-0080 6 Cores	✗	✓	✓	 COMING SOON
 C6032-0080 8 Cores	✗	✓	✓	 COMING SOON
 C6670-0020 2 x 12 Cores	✗	✓	 COMING SOON	 COMING SOON
 C6670-0020 2 x 32 Cores	✗	✓	 COMING SOON	 COMING SOON

## 1.3 Registry keys for optimized real-time performance of the controller

To improve the real-time performance of the controller, a registry key must be set up. The registry key is required for each controller listed in this document.



### Key

OptimizeCacheAccess = 0x32 (hex)

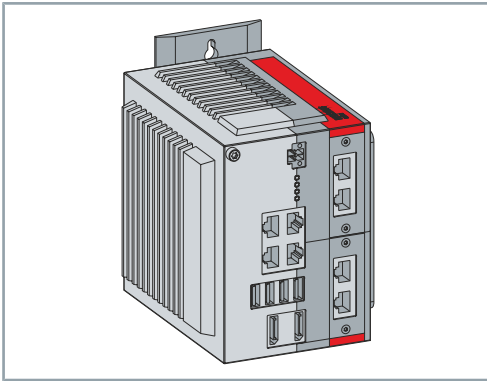
### Type

REG\_DWORD

### File path

Computer\HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Beckhoff\TwinCAT3\System

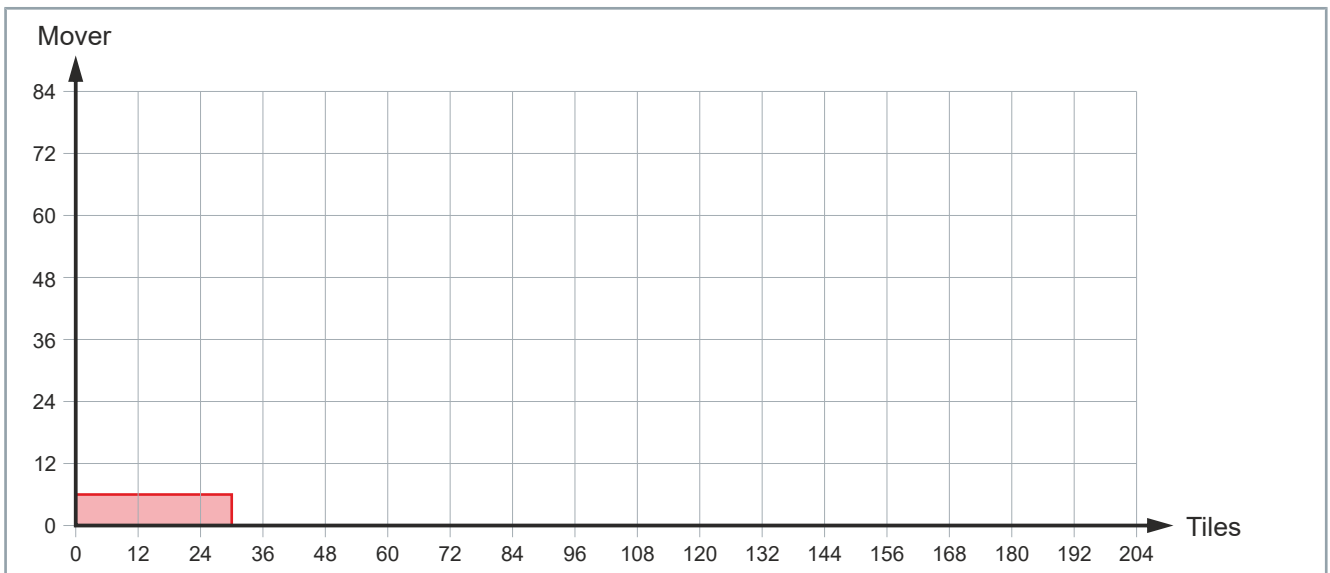
## 2 C6032-0080 with 6 cores



Configuration number with license	000681022
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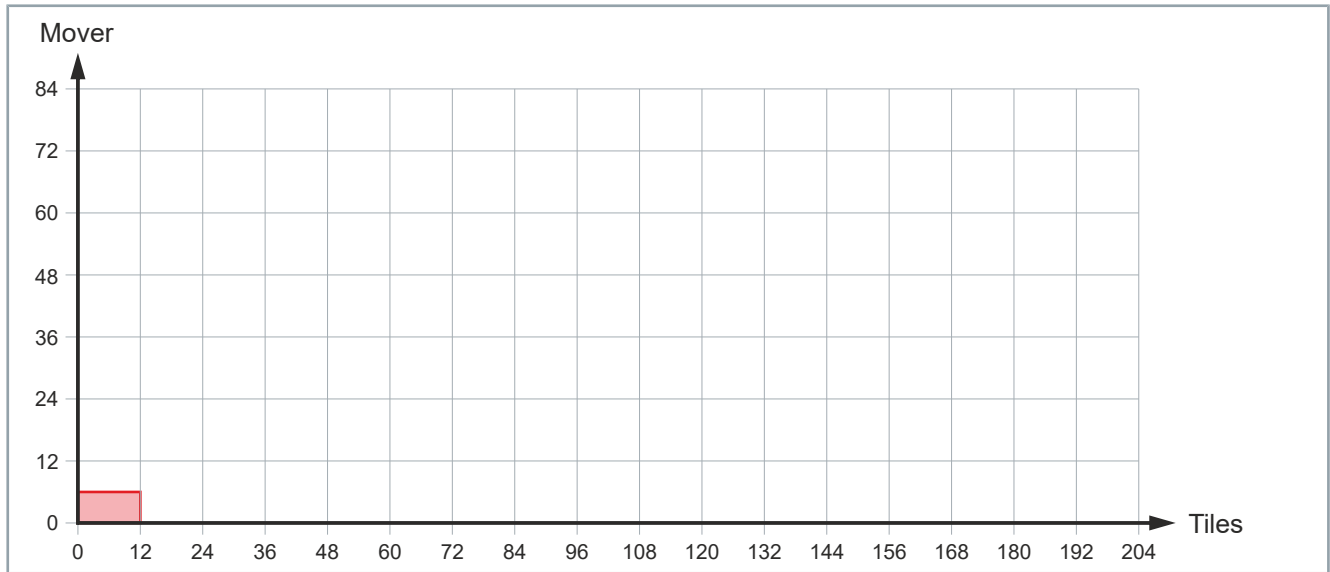
### 2.1 Mover-tile ratio

#### 2.1.1 APS4322-0000



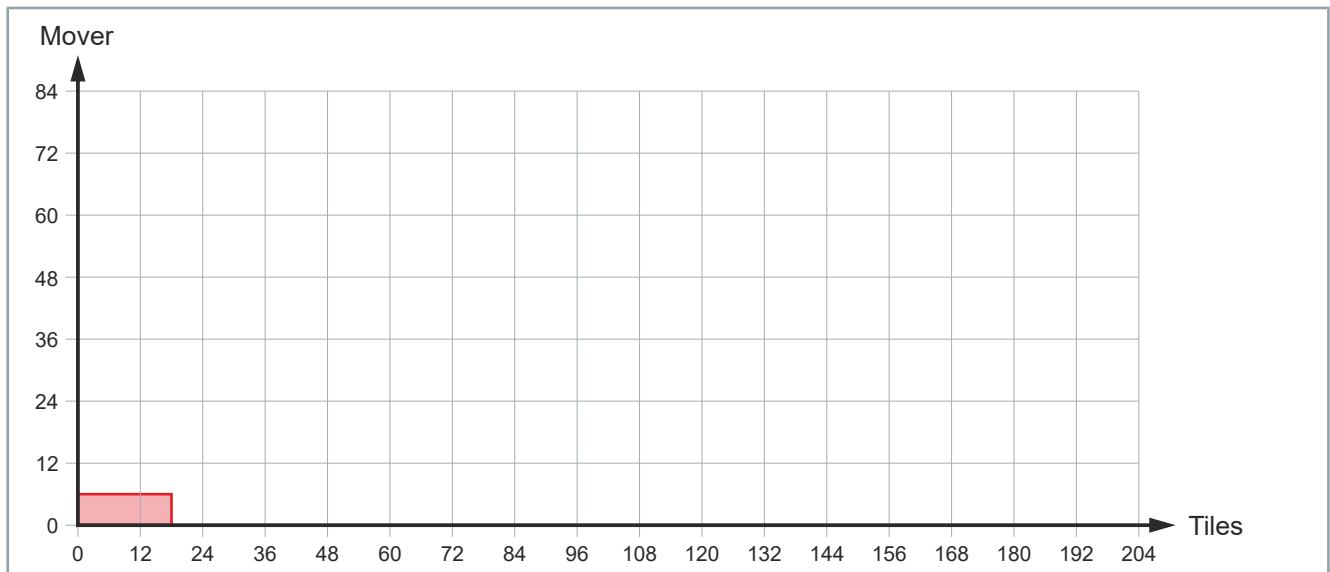
Tiles	4	8	12	16	20	24	28	30	32	36	40	...	196	200	204
Mover	6	6	6	6	6	6	6	6	-	-	-	...	-	-	-

2.1.2 APS4244-1x00



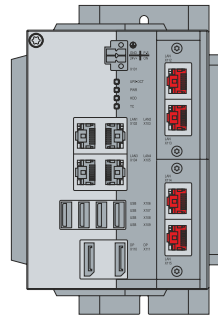
Tiles	4	8	12	16	20	24	28	32	36	40	44	...	196	200	204
Mover	6	6	6	-	-	-	-	-	-	-	-	...	-	-	-

2.1.3 APS4242-1x00 and APS4224-1x00



Tiles	4	8	12	16	18	20	24	28	32	36	40	...	196	200	204
Mover	6	6	6	6	6	-	-	-	-	-	-	...	-	-	-

## 2.2 Technical data

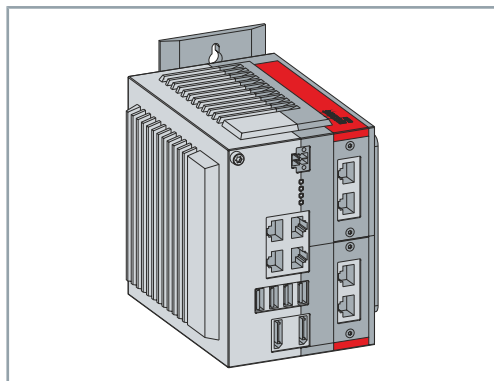


	CPU cores	EtherCAT ports
Total number	6	8
• maximally usable for XPlanar	2 (with Core Boost 3 movers per core)	3 (2 x FC9082)
• Reserve for NC, PLC, HMI, etc.	4	5

## 2.3 Configuration

Options	Description	Number
C6032-0080	Ultra-compact industrial PCs <ul style="list-style-type: none"> <li>• compact motherboard for Intel® Celeron®, Core™ i3/i5/i7 11th generation processors</li> <li>• 2 PCIe® compact module slots for inserting Beckhoff PCIe® compact modules</li> <li>• Graphics integrated into the processor</li> <li>• 3 x 100/1000/2500BASE-T and 1 x 100/1000BASE-T on-board</li> <li>• 24 V DC power supply</li> </ul>	1
C9900-C640	Processor 11th generation Intel® Core™ i5-11500HE, 2.6 GHz base frequency, 6 cores (TC3: 70), instead of Intel® Celeron® 6600HE 2.6 GHz (TC3: 50)	1
C9900-R272	Memory extension to 32 GB DDR4 RAM, instead of 4 GB	1
FC9082	Gigabit Ethernet PCIe® compact module for PCs with Beckhoff PCIe® compact module slots, 2 channels, PCI Express®-x1 bus	2
C9900-H598	160 GB M.2 SSD, 3D flash, extended temperature range, instead of 40 GB M.2 SSD	1
C9900-S540	Windows 11 IoT Enterprise 2024 LTSC, 64 bit, English, for Industrial PCs with Intel® Celeron®, Pentium®, Core™ i3 or Core™ i5 from the 8th generation	1
TC1250-0070	TwinCAT 3 PLC/NC PTP 10 axes, platform level 70 (High Performance)	1
TF5890-0070	Software license, TwinCAT 3 XPlanar, platform level 70 (High Performance)	1

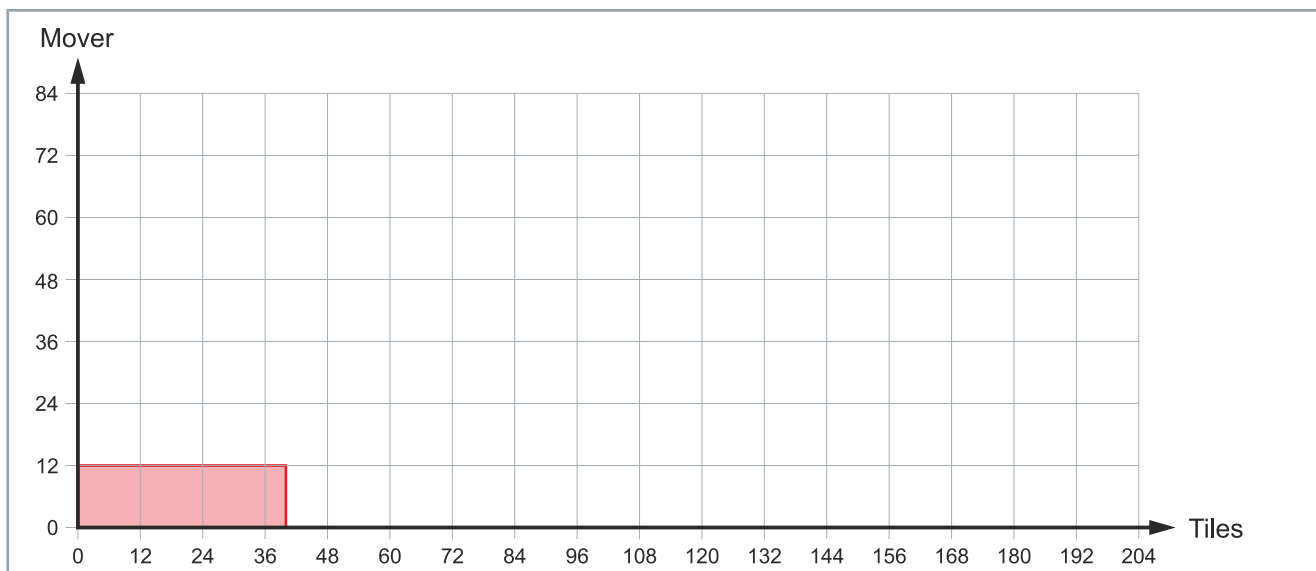
### 3 C6032-0080 with 8 cores



Configuration number with license	000653943
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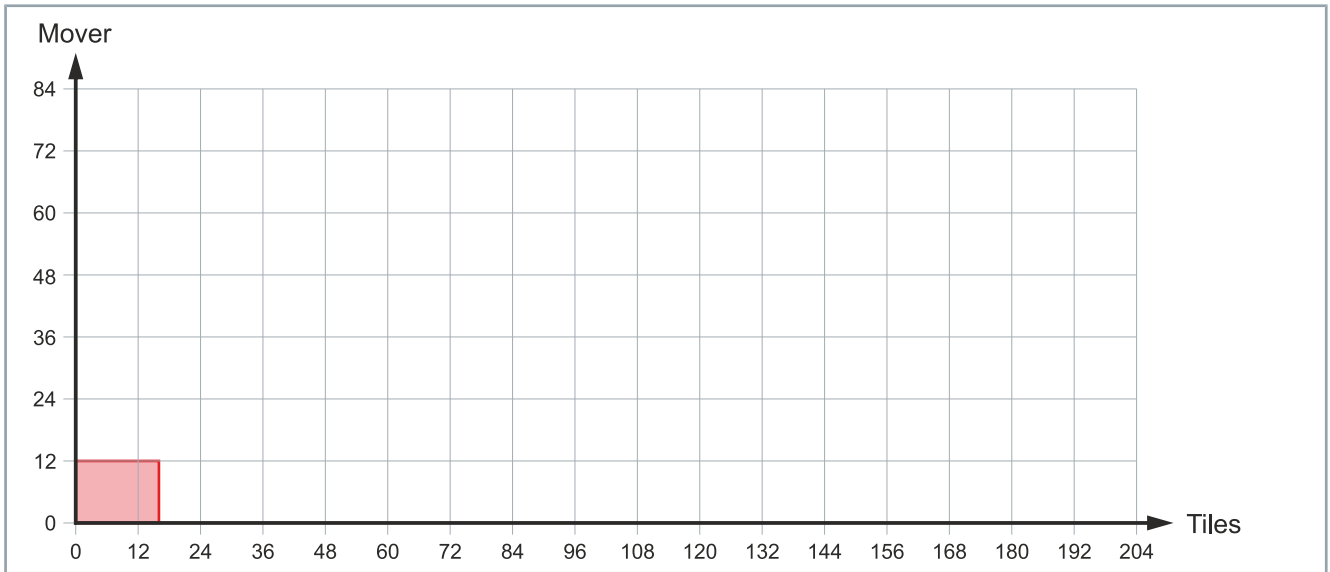
#### 3.1 Mover-tile ratio

##### 3.1.1 APS4322-0000



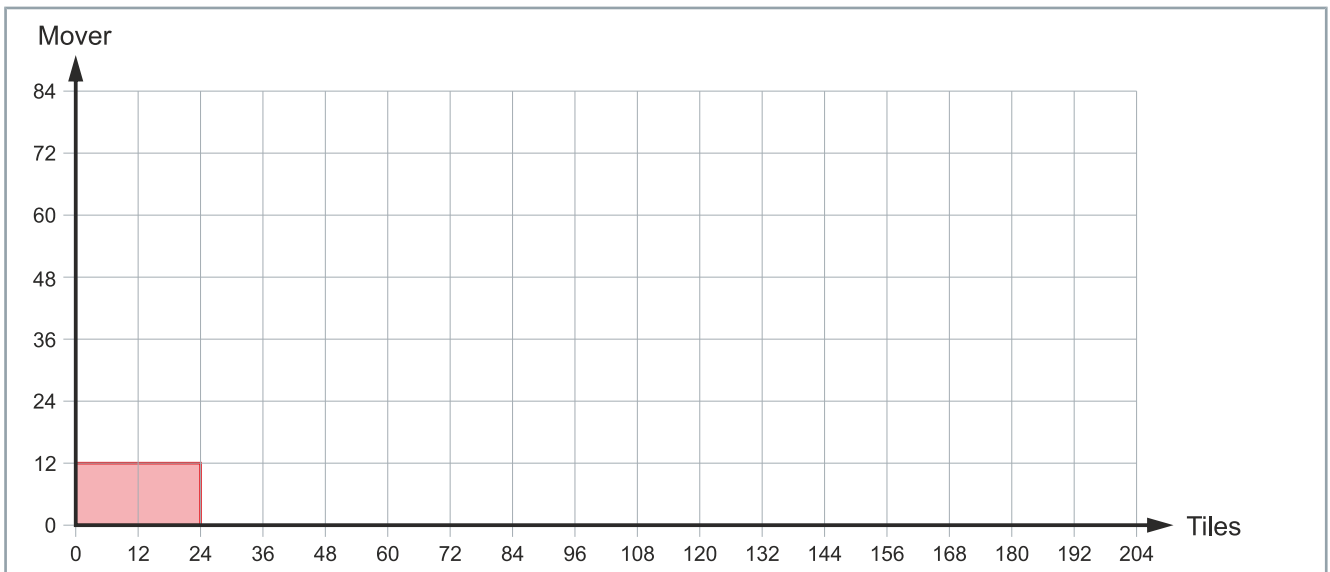
Tiles	4	8	12	16	20	24	28	32	36	40	44	...	196	200	204
Mover	12	12	12	12	12	12	12	12	12	12	-	...	-	-	-

### 3.1.2 APS4244-1x00



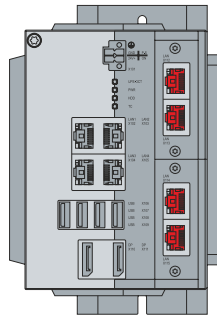
Tiles	4	8	12	16	20	24	28	32	36	40	44	...	196	200	204
Mover	12	12	12	12	-	-	-	-	-	-	-	...	-	-	-

### 3.1.3 APS4242-1x00 and APS4224-1x00



Tiles	4	8	12	16	20	24	28	32	36	40	44	...	196	200	204
Mover	12	12	12	12	12	12	-	-	-	-	-	...	-	-	-

### 3.2 Technical data

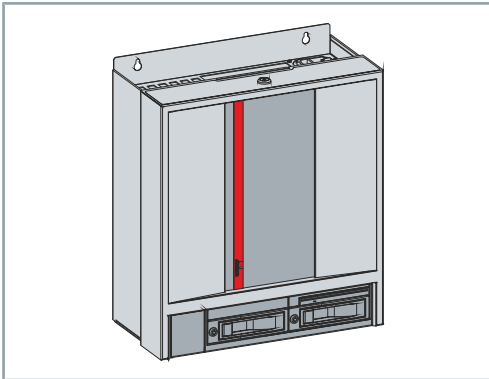


	CPU cores	EtherCAT ports
Total number	8	8
• maximally usable for XPlanar	4 (with Core Boost 3 movers per core)	4 (2 x FC9082)
• Reserve for NC, PLC, HMI, etc.	4	4

### 3.3 Configuration

Options	Description	Number
C6032-0080	Ultra-compact industrial PCs <ul style="list-style-type: none"> <li>• compact motherboard for Intel® Celeron®, Core™ i3/i5/i7 11th generation processors</li> <li>• 2 PCIe® compact module slots for inserting Beckhoff PCIe® compact modules</li> <li>• Graphics integrated into the processor</li> <li>• 3 x 100/1000/2500BASE-T and 1 x 100/1000BASE-T on-board</li> <li>• 24 V DC power supply</li> </ul>	1
C9900-C641	Processor 11th generation Intel® Core™ i7-11850HE, 2.6 GHz base frequency, 8 cores (TC3: 80), instead of Intel® Celeron® 6600HE 2.6 GHz (TC3: 50)	1
C9900-R272	Memory expansion to 32 GB DDR4 RAM, instead of 4 GB	1
FC9082	Gigabit Ethernet PCIe® compact module for PCs with Beckhoff PCIe® compact module slots, 2 channels, PCI Express®-x1 bus	2
C9900-H598	160 GB M.2 SSD, 3D flash, extended temperature range, instead of 40 GB M.2 SSD	1
C9900-S542	Windows 11 IoT Enterprise 2024 LTSC, 64 bit, English, for industrial PCs with Intel® Core™ i7 or Core™ i9 from the 8th generation	1
TC1250-0080	TwinCAT 3 PLC/NC PTP 10 axes, platform level 80 (Very High Performance)	1
TF5890-0080	Software license, TwinCAT 3 XPlanar, platform level 80 (Very High Performance)	1

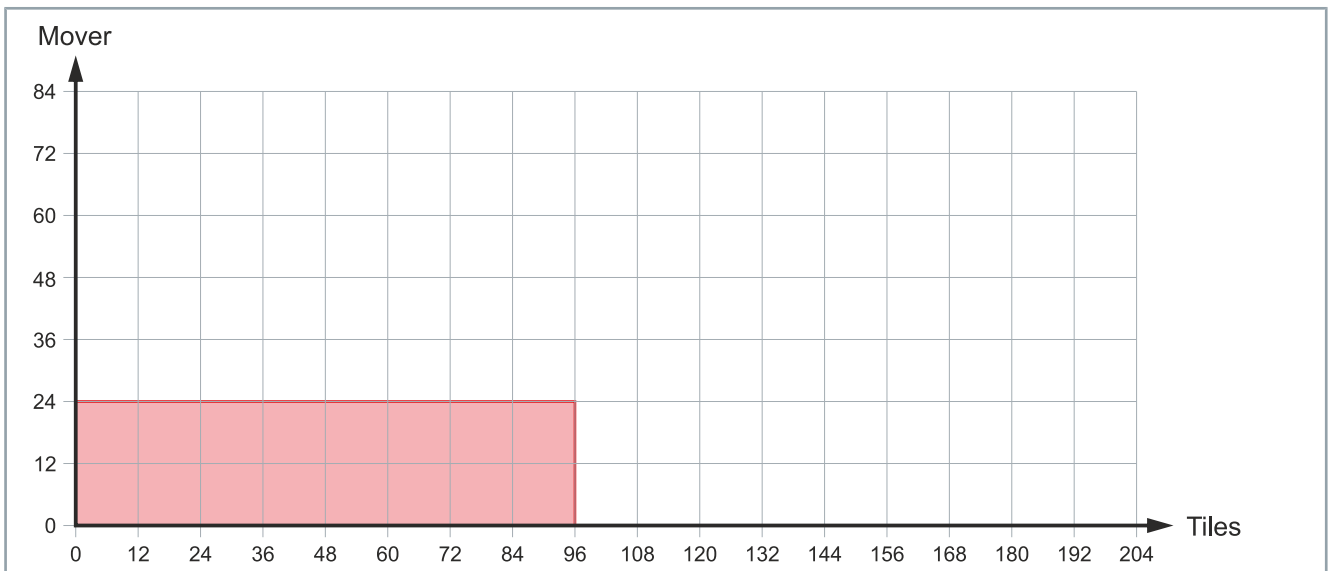
## 4 C6670-0020 with 2 x 12 cores



Configuration number with license	000653040
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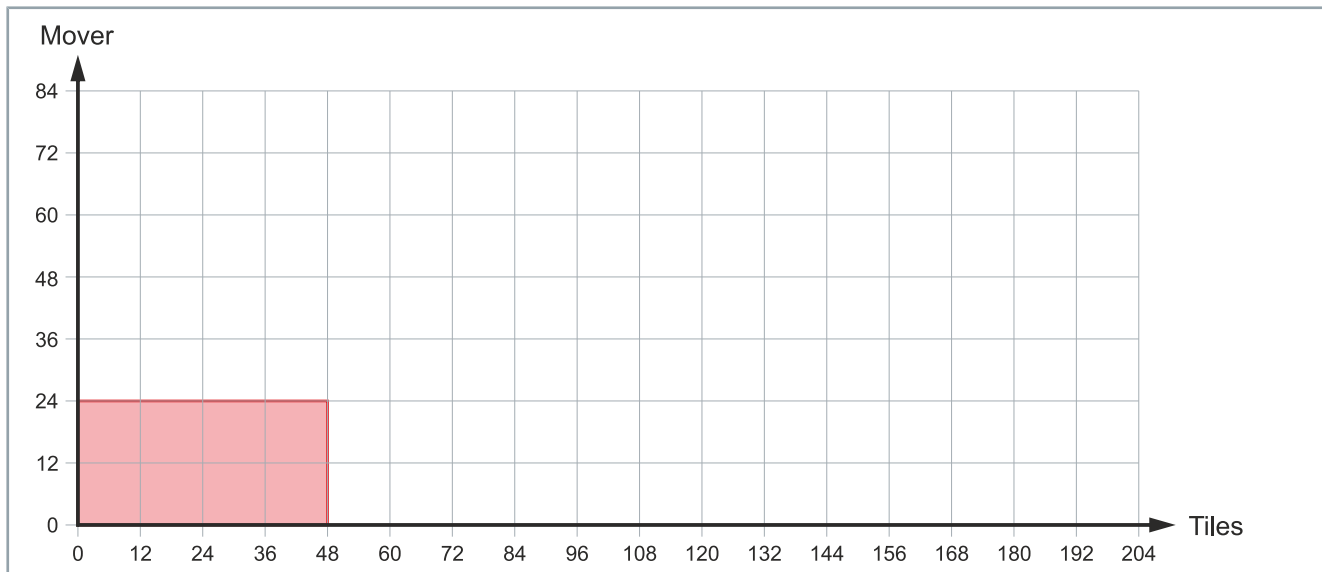
### 4.1 Mover-tile ratio

#### 4.1.1 APS4322-0000



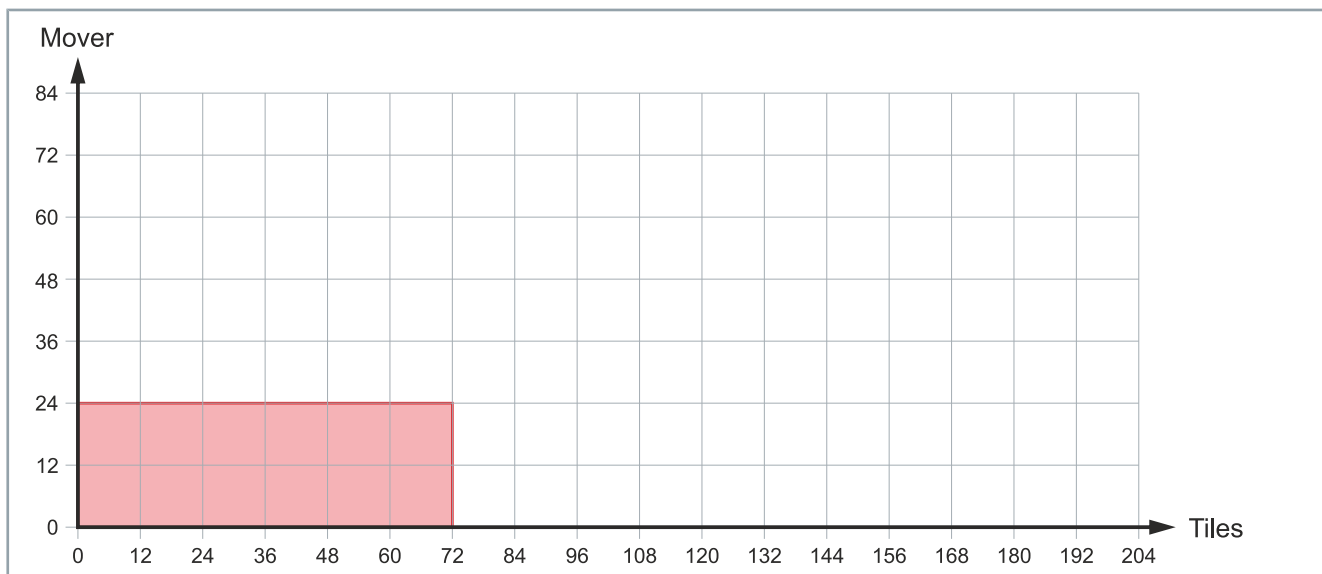
Tiles	4	8	12	16	20	24	28	...	92	96	100	...	196	200	204
Mover	24	24	24	24	24	24	24	...	24	24	-	...	-	-	-

4.1.2 APS4244-1x00



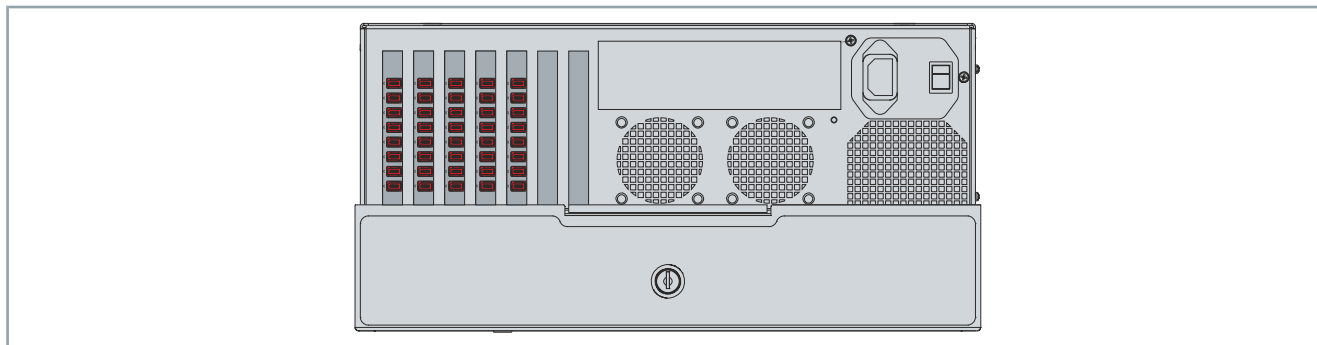
Tiles	4	8	12	16	20	24	28	...	44	48	52	...	196	200	204
Mover	24	24	24	24	24	24	24	...	24	24	-	...	-	-	-

4.1.3 APS4242-1x00 and APS4224-1x00



Tiles	4	8	12	16	20	24	28	...	68	72	76	...	196	200	204
Mover	24	24	24	24	24	24	24	...	24	24	-	...	-	-	-

## 4.2 Technical data

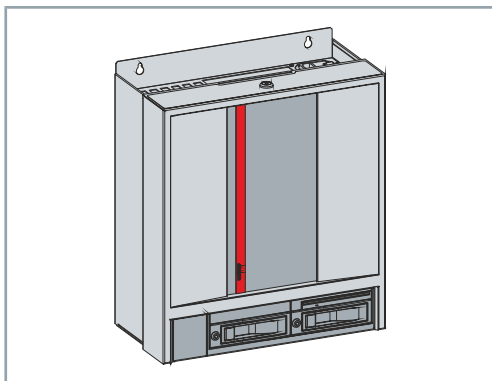


	CPU cores	EtherCAT ports
Total number	24 (2 x 12)	20
• maximally usable for XPlanar	12	16 (2 x FC1428)
• Reserve for NC, PLC, HMI, etc.	12	4

## 4.3 Configuration

Options	Description	Number
C6670-0020	Control cabinet industrial server <ul style="list-style-type: none"> <li>• Server motherboard for 5th generation Intel® Xeon® Scalable processors</li> <li>• 1 x PCIe®-x8, 5 x PCIe®-x16 for full-length plug-in cards</li> <li>• Graphics card, 1 DVI-I and 1 DVI-D connection, occupies one PCIe® x16 slot</li> <li>• 2 x 10GBASE-T on-board</li> <li>• 2 removable frames for hard disks</li> <li>• 100...240 V AC power supply</li> </ul>	1
C9900-C593	2 processors Intel® Xeon® Silver 4510, 2.4 GHz, 12 cores per processor (TC3:83)	1
C9900-H824	320 GB high-performance SSD, NVMe Express™, 3D flash	1
C9900-R291	128 GB DDR5-RAM ECC, 8 RDIMMs of 16 GB, uses 4 of 8 DRAM channels per CPU	1
C9900-S515	Windows 10 IoT Enterprise 2021 LTSC, 64 bit, English, for industrial PCs with Intel® Core™ i7, i9 and industrial server C6670	1
C9900-S712	Installation of the latest TwinCAT 3.1 build 4026 or newer on PCs with Windows 10 IoT Enterprise LTSC 2021, without TwinCAT license	1
FC9024	Gigabit Ethernet plug-in card, 4 channels, PCIe® x1	1
FC1428	EtherCAT G master plug-in card, 8 channels, PCIe® x4	2
TC1250-0083	TwinCAT 3 PLC/NC PTP 10 axes, platform level 83 (Very High Performance)	1
TF5890-0083	Software license, TwinCAT 3 XPlanar, platform level 83 (Very High Performance)	1

## 5 C6670-0020 with 2 x 32 cores

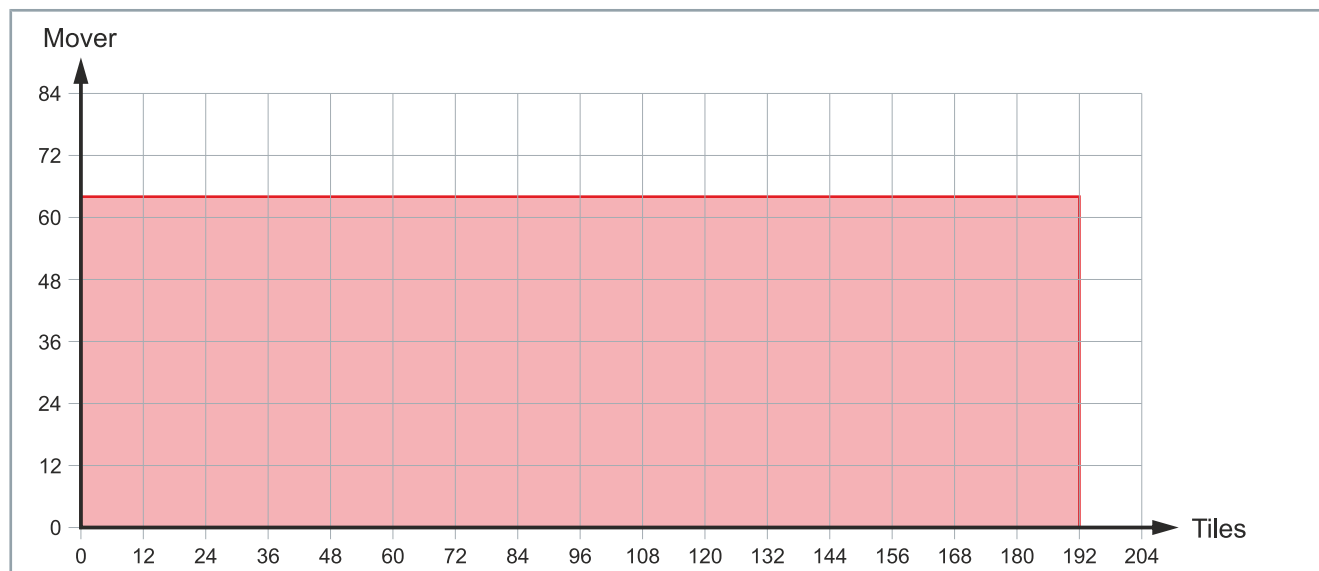


Configuration number with license

000628236

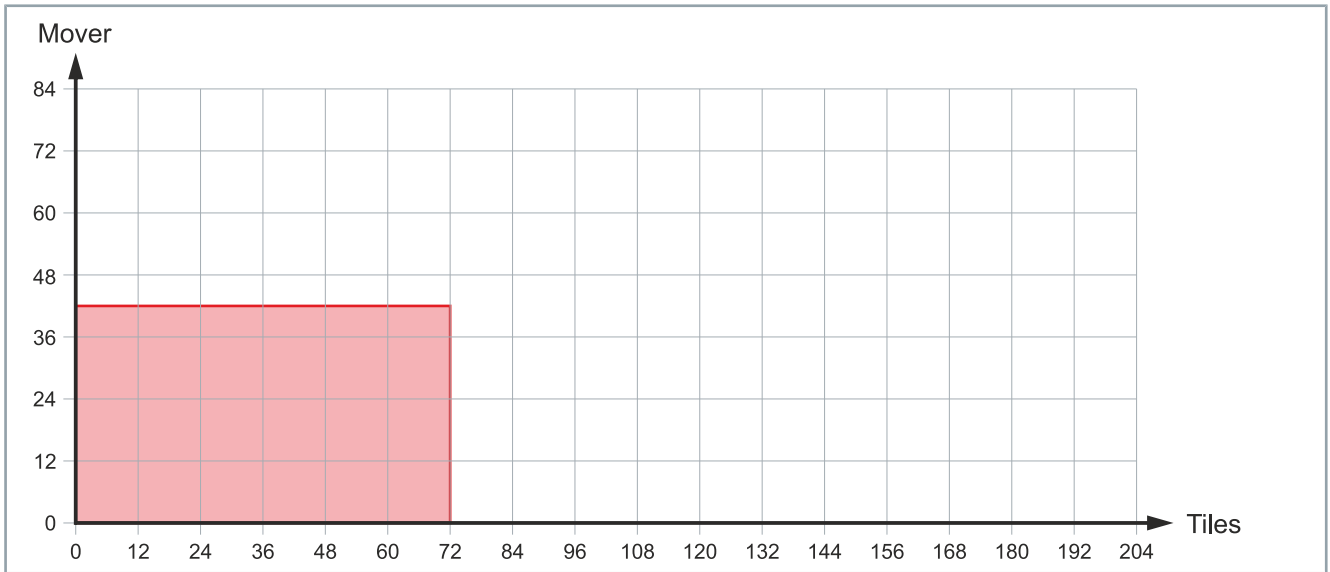
### 5.1 Mover-tile ratio

#### 5.1.1 APS4322-0000



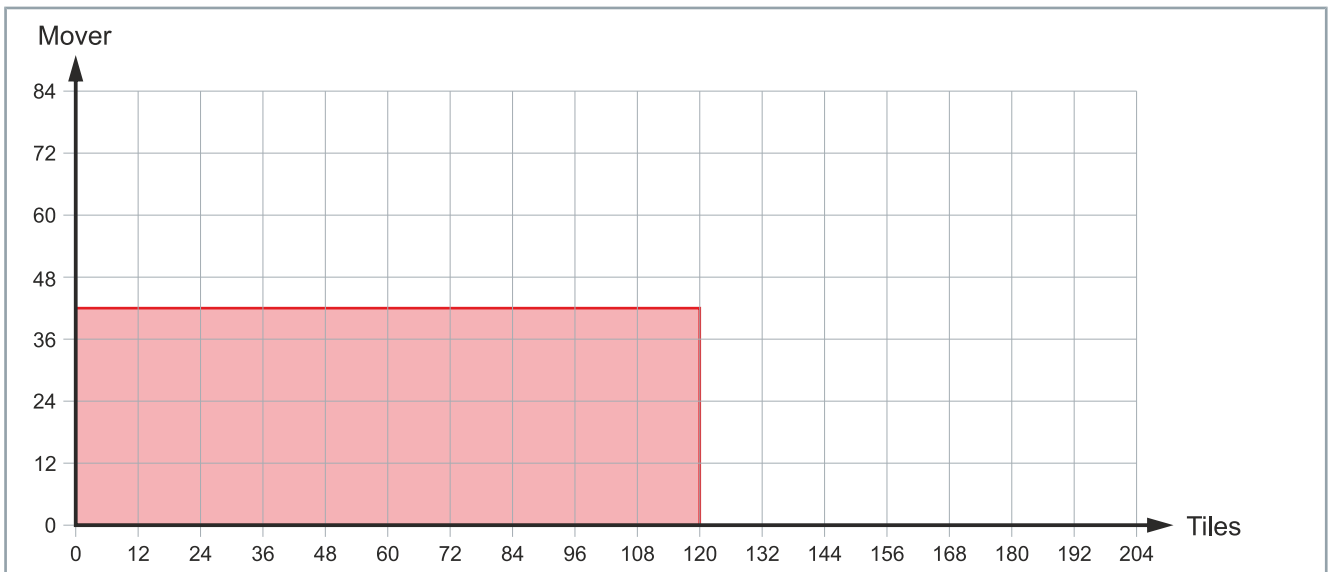
Tiles	4	8	12	16	20	24	28	...	180	184	188	192	196	200	204
Mover	64	64	64	64	64	64	64	...	64	64	64	64	-	-	-

### 5.1.2 APS4244-1x00



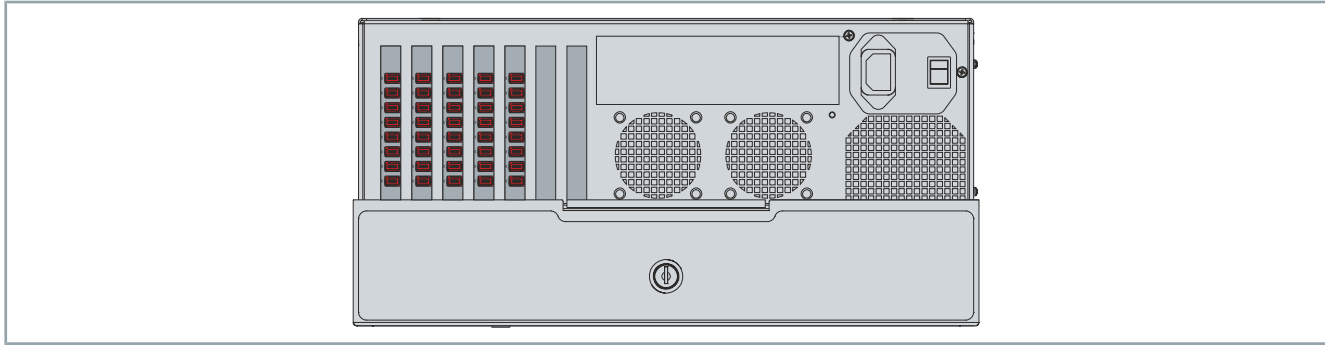
Tiles	4	8	12	16	20	24	28	...	68	72	76	...	196	200	204
Mover	42	42	42	42	42	42	42	...	42	42	-	...	-	-	-

### 5.1.3 APS4242-1x00 and APS4224-1x00



Tiles	4	8	12	16	20	24	28	...	116	120	124	...	196	200	204
Mover	42	42	42	42	42	42	42	...	42	42	-	...	-	-	-

## 5.2 Technical data



	CPU cores	EtherCAT ports
Total number	64 (2 x 32)	28
• maximally usable for XPlanar	32	24 (3 x FC1428)
• Reserve for NC, PLC, HMI, etc.	32	4

## 5.3 Configuration

Options	Description	Number
C6670-0020	Control cabinet industrial server <ul style="list-style-type: none"> <li>• Server motherboard for 5th generation Intel® Xeon® Scalable processors</li> <li>• 1 x PCIe®-x8, 5 x PCIe®-x16 for full-length plug-in cards</li> <li>• Graphics card, 1 DVI-I and 1 DVI-D connection, occupies one PCIe® x16 slot</li> <li>• 2 x 10GBASE-T on-board</li> <li>• 2 removable frames for hard disks</li> <li>• 100...240 V AC power supply</li> </ul>	1
C9900-C598	2 processors Intel® Xeon® Gold 6530, 2.1 GHz, 32 cores per processor (TC3:84)	1
C9900-H824	320 GB high-performance SSD, NVMe Express™, 3D flash	1
C9900-R291	128 GB DDR5-RAM ECC, 8 RDIMMs of 16 GB, uses 4 of 8 DRAM channels per CPU	1
C9900-S515	Windows 10 IoT Enterprise 2021 LTSC, 64 bit, English, for industrial PCs with Intel® Core™ i7, i9 and industrial server C6670	1
C9900-S712	Installation of the latest TwinCAT 3.1 build 4026 or newer on PCs with Windows 10 IoT Enterprise LTSC 2021, without TwinCAT license	1
FC9024	Gigabit Ethernet plug-in card, 4 channels, PCIe® x1	1
FC1428	EtherCAT G master plug-in card, 8 channels, PCIe® x4	3
TC1250-0084	TwinCAT 3 PLC/NC PTP 10 axes, platform level 84 (Other 33...64 Cores)	1
TF5890-0084	Software license, TwinCAT 3 XPlanar, platform level 84 (Very High Performance)	1

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