

Media Capabilities Supported by Intel Hardware

Contents

Chapter 1: Media Capabilities Supported by Intel Hardware	
Features and Formats	19

Media Capabilities Supported by Intel Hardware

1

The tables below summarize media capabilities for various Intel processors. If you are looking for detailed descriptions of supported features and formats, refer to [Features and Formats](#).

Summary

NOTE Intel® Core™ Processors without processor graphics do not have media support.

Hardware	Media Capabilities	Features and Formats
Intel® Discrete Graphics <ul style="list-style-type: none"> Intel® Iris® Xe MAX Graphics Intel® Arc™ A-Series Graphics 	<ul style="list-style-type: none"> Codecs: Encode Overview Codecs: Decode Overview 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
12th Generation Intel® Core™ Processors: <ul style="list-style-type: none"> Intel® UHD Graphics 770 Intel® UHD Graphics 730 Intel® UHD Graphics 710 Intel® Iris® Xe MAX Graphics Intel® UHD Graphics 	<ul style="list-style-type: none"> Codecs: Encode Overview Codecs: Decode Overview 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
11th Generation Intel® Core™ Processors: <ul style="list-style-type: none"> Intel® Iris® Xe MAX Graphics Intel® UHD Graphics Intel® UHD Graphics 750 		
10th Generation Intel® Core™ Processors <ul style="list-style-type: none"> Intel® Iris® Plus Graphics Intel® UHD Graphics Intel® UHD Graphics 630 	<ul style="list-style-type: none"> Codecs: Encode Overview Codecs: Decode Overview 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
9th Generation Intel® Core™ Processors <ul style="list-style-type: none"> Intel® UHD Graphics 630 	<ul style="list-style-type: none"> Codecs: Encode Overview Codecs: Decode Overview 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
5th, 6th, 7th, 8th Generation Intel® Core™ Processors	<ul style="list-style-type: none"> Codecs: Encode Overview Codecs: Decode Overview 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
Other Processors <ul style="list-style-type: none"> Intel Atom® Processors x5 and x7 Processor Series 	<ul style="list-style-type: none"> Codecs: Encode Overview Codecs: Decode Overview 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features

- Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series
- Intel® Core™ Processors with Intel® Hybrid Technology
- Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications

Encode Support

- [Codecs: Encode Support for Intel® Discrete Graphics](#)
- [Codecs: Encode Support for 11th and 12th Generation Intel® Core™ Processors](#)
- [Codecs: Encode Support for 10th Generation Intel® Core™](#)
- [Codecs: Encode Support for 9th Generation Intel® Core™](#)
- [Codecs: Encode Support for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors](#)
- [Codecs: Encode Support for other Intel Processors](#)

Codecs: Encode Support for Intel® Discrete Graphics

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
AVC 8-bit, 4:2:0	✓	✓
AVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	
VP8 (fixed-function hardware + shader-based) 8-bit, 4:2:0		
MPEG2 (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	
MJPEG 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:2	✓	✓
MJPEG 8-bit, 4:4:4	✓	✓
HEVC 8-bit, 4:2:0	✓	✓
HEVC 10-bit, 4:2:0	✓	✓
HEVC 8-bit, 4:2:2		✓
HEVC 10-bit, 4:2:2		✓
HEVC 8-bit, 4:4:4	✓	✓
HEVC 10-bit, 4:4:4	✓	✓

Codec	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
HEVC 12-bit		
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:0	✓	
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:0	✓	
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:2	✓	
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:2	✓	
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:2	✓	
VP9 8-bit, 4:2:0	✓	✓
VP9 10-bit, 4:2:0	✓	✓
VP9 8-bit, 4:4:4	✓	✓
VP9 10-bit, 4:4:4	✓	✓
AV1 8-bit, 4:2:0;		✓
AV1 10-bit, 4:2:0		✓

To find details about supported features and formats, refer to [Encode Features for Intel® Discrete Graphics](#).

Codecs: Encode Support for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	11th Generation Intel® Core™ Processors	12th Generation Intel® Core™ Processors
AVC 8-bit, 4:2:0	✓	✓
AVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓
VP8 (fixed-function hardware + shader-based) 8-bit, 4:2:0		
MPEG2 (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:2	✓	✓
MJPEG 8-bit, 4:4:4	✓	✓
HEVC 8-bit, 4:2:0	✓	✓
HEVC 10-bit, 4:2:0	✓	✓
HEVC 4:2:2		
HEVC 8-bit, 4:4:4	✓	✓
HEVC 10-bit, 4:4:4	✓	✓
HEVC 12-bit		
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:0	✓	✓
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:0	✓	✓
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:2	✓	✓
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:2	✓	✓
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:2	✓	✓
VP9 8-bit, 4:2:0	✓	✓
VP9 10-bit, 4:2:0	✓	✓
VP9 8-bit, 4:4:4	✓	✓
VP9 10-bit, 4:4:4	✓	✓
AV1		

To find details about supported features and formats, refer to [Encode Features for 11th and 12th Generation Intel® Core™ Processors](#).

Codecs: Encode Support for 10th Generation Intel® Core™

- Intel® Iris® Plus Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 630

NOTE Processors formerly codenamed **Ice Lake** have Intel® Iris® Plus Graphics and Intel® UHD Graphics.

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
AVC 8-bit, 4:2:0	✓	✓
AVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓
VP8 (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓
MPEG2 (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:2	✓	✓
MJPEG 8-bit, 4:4:4	✓	✓
HEVC 8-bit, 4:2:0	✓	
HEVC 10-bit, 4:2:0	✓	
HEVC 4:2:2		
HEVC 8-bit, 4:4:4	✓	
HEVC 10-bit, 4:4:4	✓	
HEVC 12-bit		
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:0	✓	✓
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:0		
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:2	✓	
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:2	✓	
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:2		
VP9 8-bit, 4:2:0	✓	
VP9 10-bit, 4:2:0	✓	
VP9 8-bit, 4:4:4	✓	
VP9 10-bit, 4:4:4	✓	
AV1		

To find details about supported features and formats, refer to [Encode Features for 10th Generation Intel® Core™](#).

Codecs: Encode Support for 9th Generation Intel® Core™

- Intel® UHD Graphics 630

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	9th Generation Intel® Core™
AVC 8-bit, 4:2:0	✓
AVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓
VP8 (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓
MPEG2 (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓
MJPEG 8-bit, 4:2:0	✓
MJPEG 8-bit, 4:2:2	✓
MJPEG 8-bit, 4:4:4	✓
HEVC 8-bit, 4:2:0	
HEVC 10-bit, 4:2:0	
HEVC 4:2:2	
HEVC 8-bit, 4:4:4	
HEVC 10-bit, 4:4:4	
HEVC 12-bit	
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:0	✓
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:0	
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:2	
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:2	
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:2	
VP9 8-bit, 4:2:0	

Codec	9th Generation Intel® Core™
VP9 10-bit, 4:2:0	
VP9 8-bit, 4:4:4	
VP9 10-bit, 4:4:4	
AV1	

To find details about supported features and formats, refer to [Encode Features for 9th Generation Intel® Core™](#).

Codecs: Encode Support for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™
AVC 8-bit, 4:2:0		✓	✓
AVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓	✓
VP8 (fixed-function hardware + shader-based) 8-bit, 4:2:0		✓	✓
MPEG2 (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓	✓
MJPEG 8-bit, 4:2:0		✓	✓
MJPEG 8-bit, 4:2:2		✓	✓
MJPEG 8-bit, 4:4:4		✓	✓
HEVC 8-bit, 4:2:0			
HEVC 10-bit, 4:2:0			
HEVC 4:2:2			
HEVC 8-bit, 4:4:4			
HEVC 10-bit, 4:4:4			
HEVC 12-bit			
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:0		✓	✓
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:0			✓

Codec	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:0			
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:2			
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:2			
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:2			
VP9 8-bit, 4:2:0			
VP9 10-bit, 4:2:0			
VP9 8-bit, 4:4:4			
VP9 10-bit, 4:4:4			
AV1			

To find details about supported features and formats, refer to [Encode Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors](#).

Codecs: Encode Support for other Intel Processors

- Intel Atom® Processors x5 and x7 Processor Series
- Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series
- Intel® Core™ Processors with Intel® Hybrid Technology
- Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
AVC 8-bit, 4:2:0		✓	✓	✓
AVC (fixed-function hardware + shader-based) 8-bit, 4:2:0	✓	✓		
VP8 (fixed-function hardware + shader-based) 8-bit, 4:2:0				
MPEG2 (fixed-function hardware + shader-based) 8-bit, 4:2:0				
MJPEG 8-bit, 4:2:0		✓	✓	✓
MJPEG 8-bit, 4:2:2		✓	✓	✓
MJPEG 8-bit, 4:4:4		✓	✓	✓
HEVC 8-bit, 4:2:0			✓	✓
HEVC 10-bit, 4:2:0			✓	✓
HEVC 4:2:2				
HEVC 8-bit, 4:4:4			✓	✓
HEVC 10-bit, 4:4:4			✓	✓
HEVC 12-bit				
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:0		✓		
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:0		✓		
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:0				
HEVC (fixed-function hardware + shader-based) 8-bit, 4:2:2				

Codec	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
HEVC (fixed-function hardware + shader-based) 10-bit, 4:2:2				
HEVC (fixed-function hardware + shader-based) 12-bit, 4:2:2				
VP9 8-bit, 4:2:0			✓	✓
VP9 10-bit, 4:2:0			✓	✓
VP9 8-bit, 4:4:4			✓	✓
VP9 10-bit, 4:4:4			✓	✓
AV1				

To find details about supported features and formats, refer to [Encode Features for other Intel Processors](#).

Decode Support

- [Codecs: Decode Support for Intel® Discrete Graphics](#)
- [Codecs: Decode Support for 11th and 12th Generation Intel® Core™ Processors](#)
- [Codecs: Decode Support for 10th Generation Intel® Core™](#)
- [Codecs: Decode Support for 9th Generation Intel® Core™](#)
- [Codecs: Decode Support for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors](#)
- [Codecs: Decode Support for other Intel Hardware](#)

Codecs: Decode Support for Intel® Discrete Graphics

Codec	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
AVC 8-bit, 4:2:0	✓	✓
MPEG2 8-bit, 4:2:0	✓	✓
VC1 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:0	✓	✓
VP8 8-bit, 4:2:0		

Codec	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
HEVC 8-bit, 4:2:0	✓	✓
HEVC 10-bit, 4:2:0	✓	✓
HEVC 12-bit, 4:2:0	✓	✓
HEVC 8-bit, 4:2:2	✓	✓
HEVC 10-bit, 4:2:2	✓	✓
HEVC 12-bit, 4:2:2	✓	✓
HEVC 8-bit, 4:4:4	✓	✓
HEVC 10-bit, 4:4:4	✓	✓
HEVC 12-bit, 4:4:4	✓	✓
VP9 8-bit, 4:2:0	✓	✓
VP9 10-bit, 4:2:0	✓	✓
VP9 12-bit, 4:2:0	✓	✓
VP9 8-bit, 4:4:4	✓	✓
VP9 10-bit, 4:4:4	✓	✓
VP9 12-bit, 4:4:4	✓	✓
AV1 8-bit, 4:2:0	✓	✓
AV1 10-bit, 4:2:0	✓	✓

To find details about supported features and formats, refer to [Decode Features for Intel® Discrete Graphics](#).

Codecs: Decode Support for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

Codec	11th Generation Intel® Core™	12th Generation Intel® Core™
AVC 8-bit, 4:2:0	✓	✓
MPEG2 8-bit, 4:2:0	✓	✓

Codec	11th Generation Intel® Core™	12th Generation Intel® Core™
VC1 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:0	✓	✓
VP8 8-bit, 4:2:0		
HEVC 8-bit, 4:2:0	✓	✓
HEVC 10-bit, 4:2:0	✓	✓
HEVC 12-bit, 4:2:0	✓	✓
HEVC 8-bit, 4:2:2	✓	✓
HEVC 10-bit, 4:2:2	✓	✓
HEVC 12-bit, 4:2:2	✓	✓
HEVC 8-bit, 4:4:4	✓	✓
HEVC 10-bit, 4:4:4	✓	✓
HEVC 12-bit, 4:4:4	✓	✓
VP9 8-bit, 4:2:0	✓	✓
VP9 10-bit, 4:2:0	✓	✓
VP9 12-bit, 4:2:0	✓	✓
VP9 8-bit, 4:4:4	✓	✓
VP9 10-bit, 4:4:4	✓	✓
VP9 12-bit, 4:4:4	✓	✓
AV1 8-bit, 4:2:0	✓	✓
AV1 10-bit, 4:2:0	✓	✓

To find details about supported features and formats, refer to [Decode Features for 11th and 12th Generation Intel® Core™ Processors](#).

Codecs: Decode Support for 10th Generation Intel® Core™

- Intel® Iris® Plus Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 630

NOTE Processors formerly codenamed [Ice Lake](#) have Intel® Iris® Plus Graphics and Intel® UHD Graphics.

Codec	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
AVC 8-bit, 4:2:0	✓	✓
MPEG2 8-bit, 4:2:0	✓	✓
VC1 8-bit, 4:2:0	✓	✓
MJPEG 8-bit, 4:2:0	✓	✓
VP8 8-bit, 4:2:0	✓	✓
HEVC 8-bit, 4:2:0	✓	✓
HEVC 10-bit, 4:2:0	✓	✓
HEVC 12-bit, 4:2:0		
HEVC 8-bit, 4:2:2	✓	
HEVC 10-bit, 4:2:2	✓	
HEVC 12-bit, 4:2:2		
HEVC 8-bit, 4:4:4	✓	
HEVC 10-bit, 4:4:4	✓	
HEVC 12-bit, 4:4:4		
VP9 8-bit, 4:2:0	✓	✓
VP9 10-bit, 4:2:0	✓	✓
VP9 12-bit, 4:2:0		
VP9 8-bit, 4:4:4	✓	
VP9 10-bit, 4:4:4	✓	
VP9 12-bit, 4:4:4		
AV1 8-bit, 4:2:0		
AV1 10-bit, 4:2:0		

To find details about supported features and formats, refer to [Decode Features for 10th Generation Intel® Core™](#).

Codecs: Decode Support for 9th Generation Intel® Core™

- Intel® UHD Graphics 630

Codec	9th Generation Intel® Core™
AVC 8-bit, 4:2:0	✓
MPEG2 8-bit, 4:2:0	✓

Codec	9th Generation Intel® Core™
VC1 8-bit, 4:2:0	✓
MJPEG 8-bit, 4:2:0	✓
VP8 8-bit, 4:2:0	✓
HEVC 8-bit, 4:2:0	✓
HEVC 10-bit, 4:2:0	✓
HEVC 12-bit, 4:2:0	
HEVC 8-bit, 4:2:2	
HEVC 10-bit, 4:2:2	
HEVC 12-bit, 4:2:2	
HEVC 8-bit, 4:4:4	
HEVC 10-bit, 4:4:4	
HEVC 12-bit, 4:4:4	
VP9 8-bit, 4:2:0	✓
VP9 10-bit, 4:2:0	✓
VP9 12-bit, 4:2:0	
VP9 8-bit, 4:4:4	
VP9 10-bit, 4:4:4	
VP9 12-bit, 4:4:4	
AV1 8-bit, 4:2:0	
AV1 10-bit, 4:2:0	

To find details about supported features and formats, refer to [Decode Features for 9th Generation Intel® Core™](#).

Codecs: Decode Support for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors

Codec	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™
AVC 8-bit, 4:2:0	✓	✓	✓
MPEG2 8-bit, 4:2:0	✓	✓	✓
VC1 8-bit, 4:2:0	✓	✓	✓
MJPEG 8-bit, 4:2:0	✓	✓	✓

Codec	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™
VP8 8-bit, 4:2:0	✓	✓	✓
HEVC 8-bit, 4:2:0		✓	✓
HEVC 10-bit, 4:2:0			✓
HEVC 12-bit, 4:2:0			
HEVC 8-bit, 4:2:2			
HEVC 10-bit, 4:2:2			
HEVC 12-bit, 4:2:2			
HEVC 8-bit, 4:4:4			
HEVC 10-bit, 4:4:4			
HEVC 12-bit, 4:4:4			
VP9 8-bit, 4:2:0			✓
VP9 10-bit, 4:2:0			✓
VP9 12-bit, 4:2:0			
VP9 8-bit, 4:4:4			
VP9 10-bit, 4:4:4			
VP9 12-bit, 4:4:4			
AV1 8-bit, 4:2:0			
AV1 10-bit, 4:2:0			

To find details about supported features and formats, refer to [Decode Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors](#).

Codecs: Decode Support for other Intel Hardware

- Intel Atom® Processors x5 and x7 Processor Series
- Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series
- Intel® Core™ Processors with Intel® Hybrid Technology
- Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications

Codec	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
AVC 8-bit, 4:2:0	✓	✓	✓	✓
MPEG2 8-bit, 4:2:0	✓	✓	✓	✓
VC1 8-bit, 4:2:0	✓	✓	✓	✓
MJPEG 8-bit, 4:2:0	✓	✓	✓	✓
VP8 8-bit, 4:2:0	✓	✓	✓	✓
HEVC 8-bit, 4:2:0		✓	✓	✓
HEVC 10-bit, 4:2:0		✓	✓	✓
HEVC 12-bit, 4:2:0				
HEVC 8-bit, 4:2:2			✓	✓
HEVC 10-bit, 4:2:2			✓	✓
HEVC 12-bit, 4:2:2				
HEVC 8-bit, 4:4:4			✓	✓
HEVC 10-bit, 4:4:4			✓	✓
HEVC 12-bit, 4:4:4				
VP9 8-bit, 4:2:0		✓	✓	✓
VP9 10-bit, 4:2:0			✓	✓
VP9 12-bit, 4:2:0				
VP9 8-bit, 4:4:4			✓	✓
VP9 10-bit, 4:4:4			✓	✓
VP9 12-bit, 4:4:4				
AV1 8-bit, 4:2:0				
AV1 10-bit, 4:2:0				

To find details about supported features and formats, refer to [Decode Features for other Intel Hardware](#).

Features and Formats

The tables below summarize media capabilities for various Intel processors.

Summary

Hardware	Media Capabilities
Intel® Discrete Graphics <ul style="list-style-type: none"> Intel® Iris® Xe MAX Graphics Intel® Arc™ A-Series Graphics 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
12th Generation Intel® Core™ Processors: <ul style="list-style-type: none"> Intel® UHD Graphics 770 Intel® UHD Graphics 730 Intel® UHD Graphics 710 Intel® Iris® Xe MAX Graphics Intel® UHD Graphics 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
11th Generation Intel® Core™ Processors: <ul style="list-style-type: none"> Intel® Iris® Xe MAX Graphics Intel® UHD Graphics Intel® UHD Graphics 750 	
10th Generation Intel® Core™ Processors <ul style="list-style-type: none"> Intel® Iris® Plus Graphics Intel® UHD Graphics Intel® UHD Graphics 630 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
9th Generation Intel® Core™ Processors <ul style="list-style-type: none"> Intel® UHD Graphics 630 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
5th, 6th, 7th, 8th Generation Intel® Core™ Processors	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features
Other Processors <ul style="list-style-type: none"> Intel Atom® Processors x5 and x7 Processor Series Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series Intel® Core™ Processors with Intel® Hybrid Technology Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications 	<ul style="list-style-type: none"> Encode Features Decode Features Video Processing Features

Encode Features

- [Encode Features for Intel® Discrete Graphics](#)
- [Encode Features for 11th and 12th Generation Intel® Core™ Processors](#)
- [Encode Features for 10th Generation Intel® Core™](#)
- [Encode Features for 9th Generation Intel® Core™](#)
- [Encode Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors](#)
- [Encode Features for other Intel Processors](#)

Encode Features for Intel® Discrete Graphics

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

	Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
AVC	8-bit, 4:2:0 (NV12)	✓4k	✓4k
	Additional inputs (color conversion)	<ul style="list-style-type: none"> • YUY2 • ARGB 	<ul style="list-style-type: none"> • YUY2 • ARGB
	I/P frame	✓	✓
	B frame		✓
	HRD conformant CBR/VBR	✓	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD 	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP
	Intra refresh	✓	✓
	Dynamic intra refresh	✓	
	Max frame size	✓	✓
	Adaptive max frame size	✓	
	Max slice size	✓	✓
	Weighted prediction	✓ (explicit)	✓ (explicit)
	Lookahead	✓	✓
AVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)	✓ 4k	

	Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A- Series Graphics
	I/P frame	✓	
	B frame	✓	
	HRD conformant CBR/VBR	✓	
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • AVBR • LD • ICQ • VCM • LA • LA_ICQ • LA_EXT • LA_HRD 	
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	
	Intra refresh	✓	
	Dynamic intra refresh	✓	
	Max frame size	✓	
	Adaptive max frame size	✓	
	Max slice size	✓	
	Weighted prediction	✓	
	bpyramid	✓	
	Lookahead	✓	
MPEG2 Encode	8-bit, 4:2:0 (NV12)	✓2k	
	HRD conformant CBR/VBR	✓	
	Specialized BRC modes	CBR VBR	
MJPEG Encode	4:2:0 (NV12)	✓16k	✓16k
	4:2:2 (YUY2)	✓ 16K	✓16k
	4:2:2(UYVY)	✓16k	✓16k
	4:4:4 (AYUV)	✓16k	✓16k
	ABGR	✓16k	✓16k
	Y8	✓16k	✓16k

	Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
HEVC	8-bit, 4:2:0 (NV12)	✓16k	✓16k
	10-bit, 4:2:0 (P010)	✓16k	✓16k
	8-bit, 4:2:2 (YUY2)		✓16k (Windows Only)
	10-bit, 4:2:2 (Y210)		✓16k (Windows Only)
	8-bit, 4:4:4 (AYUV)	✓16k	✓16k
	10-bit, 4:4:4 (Y410)	✓16k	✓16k
	I frame	✓16k	✓16k
	Low Delay B	✓	✓
	Random access B	✓	✓
	Screen Content Coding (SCC)	✓	✓
	BRC modes	<ul style="list-style-type: none"> • CBR • VBR • QVBR 	<ul style="list-style-type: none"> • CBR • VBR • QVBR • ICQ
HEVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)	✓8k	
	10-bit, 4:2:0 (P010)	✓8k	
	12-bit, 4:2:0 (P016)	✓8k	
	8-bit, 4:2:2 (YUY2)	✓4k	
	10-bit, 4:2:2 (Y210)	✓4k	
	12-bit, 4:2:2 (Y216)	✓4k	
	Sliding window	✓	
	Weight prediction	✓(explicit)	
	Max frame size	✓	
	Max slice size	✓	
VP9	8-bit, 4:2:0 (NV12)	✓8k	✓8k
	10-bit, 4:2:0 (P010)	✓8k	✓8k
	8-bit, 4:4:4 (AYUV)	✓8k	✓8k
	10-bit, 4:4:4 (Y410)	✓8k	✓8k
	I/P frame	✓	✓

	Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A- Series Graphics
AV1	Segmentation	✓	✓
	Multiref	✓	✓
	Tile support	✓ MxN	✓ MxN
	Temporal scalability	✓	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR 	<ul style="list-style-type: none"> • CBR • VBR
	8-bit, 4:2:0 (NV12)		✓8k
	10-bit, 4:2:0 (P010)		✓8k
	I/P frame		✓
	Low Delay B		✓
	Random access B		✓
	Segmentation		✓
	Multiref		✓
	Tile support		✓ MxN
	Temporal scalability		✓
	Long term reference		✓
	B-Pyramid		✓
	Specialized BRC modes		<ul style="list-style-type: none"> • CBR • VBR • ICQ

Encode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Format/Feature	11th and 12th Generation Intel® Core™	
AVC	8-bit, 4:2:0 (NV12)	✓4k	
	Additional inputs (color conversion)	<ul style="list-style-type: none"> • YUY2 • ARGB 	
	I/P frame	✓	
	HRD conformant CBR/VBR	✓	
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD 	
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	
	Intra refresh	✓	
	Dynamic intra refresh	✓	
	Max frame size	✓	
	Adaptive max frame size	✓	
	Max slice size	✓	
	Weighted prediction	✓ (explicit)	
	Lookahead	✓	
	AVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)	✓ 4k
		I/P frame	✓
B frame		✓	
HRD conformant CBR/VBR		✓	
Specialized BRC modes		<ul style="list-style-type: none"> • CBR • VBR • AVBR • QVBR • LD • ICQ • VCM • LA • LA_ICQ • LA_EXT • LA_HRD 	

Codec	Format/Feature	11th and 12th Generation Intel® Core™
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP
	Intra refresh	✓
	Dynamic intra refresh	✓
	Max frame size	✓
	Adaptive max frame size	✓
	Max slice size	✓
	Weighted prediction	✓
	bpyramid	✓
	Lookahead	✓
MPEG2 Encode	8-bit, 4:2:0 (NV12)	✓2k
	HRD conformant CBR/VBR	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR
MJPEG Encode	4:2:0 (NV12)	✓16k
	4:2:2 (YUY2)	✓16k
	4:2:2(UYVY)	✓16k
	4:4:4 (AYUV)	✓16k
	ABGR	✓16k
	Y8	✓16k
HEVC	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	I frame	✓16k
	Low Delay B	✓
	Random access B	✓
	Screen Content Coding (SCC)	✓
	BRC modes	<ul style="list-style-type: none"> • CBR

Codec	Format/Feature	11th and 12th Generation Intel® Core™
		<ul style="list-style-type: none"> • VBR • LA • LA_ICQ • LA_EXT • LA_HRD • QVBR
HEVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)	✓8k
	10-bit, 4:2:0 (P010)	✓8k
	12-bit, 4:2:0 (P016)	✓8k
	8-bit, 4:2:2 (YUY2)	✓4k
	10-bit, 4:2:2 (Y210)	✓4k
	12-bit, 4:2:2 (Y216)	✓4k
	Sliding window	✓
	Weight prediction	✓(explicit)
	Max frame size	✓
	Max slice size	✓
VP9	8-bit, 4:2:0 (NV12)	✓8k
	10-bit, 4:2:0 (P010)	✓8k
	8-bit, 4:4:4 (AYUV)	✓8k
	10-bit, 4:4:4 (Y410)	✓8k
	I/P frame	✓
	Segmentation	✓
	Multiref	✓
	Tile support	✓ MxN
	Temporal scalability	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR

Encode Features for 10th Generation Intel® Core™

- Intel® Iris® Plus Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 630

NOTE Processors formerly codenamed **Ice Lake** have Intel® Iris® Plus Graphics and Intel® UHD Graphics.

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
AVC	8-bit, 4:2:0 (NV12)	✓4k	✓4k
	Additional inputs (color conversion)	<ul style="list-style-type: none"> • YUY2 • ARGB 	<ul style="list-style-type: none"> • YUY2 • ARGB
	I/P frame	✓	✓
	HRD conformant CBR/VBR	✓	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD 	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP
	Intra refresh	✓	✓
	Dynamic intra refresh	✓	✓
	Max frame size	✓	✓
	Adaptive max frame size	✓	✓
	Max slice size	✓	✓
	Weighted prediction	✓ (explicit)	✓ (explicit)
	Lookahead	✓	✓
	AVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)	✓ 4k
	I/P frame	✓	✓
	B frame	✓	✓

Codec	Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
	HRD conformant CBR/VBR	✓	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • AVBR • QVBR • LD • ICQ • VCM • LA • LA_ICQ • LA_EXT • LA_HRD 	<ul style="list-style-type: none"> • CBR • VBR • AVBR • QVBR • LD • ICQ • VCM • LA • LA_ICQ • LA_EXT • LA_HRD
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP
	Intra refresh	✓	✓
	Dynamic intra refresh	✓	✓
	Max frame size	✓	✓
	Adaptive max frame size	✓	✓
	Max slice size	✓	✓
	Weighted prediction	✓	✓
	bpyramid	✓	✓
	Lookahead	✓	✓
VP8 Encode	8-bit, 4:2:0 (NV12)	✓4k	✓4k
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR 	<ul style="list-style-type: none"> • CBR • VBR
MPEG2 Encode	8-bit, 4:2:0 (NV12)	✓2k	✓2k
	HRD conformant CBR/VBR	✓	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR 	<ul style="list-style-type: none"> • CBR • VBR

Codec	Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
MJPEG Encode	4:2:0 (NV12)	✓16k	✓16k
	4:2:2 (YUY2)	✓16k	✓16k
	4:2:2(UYVY)	✓16k	✓16k
	4:4:4 (AYUV)	✓16k	✓16k
	ABGR	✓16k	✓16k
	Y8	✓16k	✓16k
	HEVC	8-bit, 4:2:0 (NV12)	✓8K
10-bit, 4:2:0 (P010)		✓8K	
8-bit, 4:4:4 (AYUV)		✓8K	
10-bit, 4:4:4 (Y410)		✓8K	
I frame		✓8k	
Low Delay B		✓	
BRC modes		<ul style="list-style-type: none"> • CBR • VBR • QVBR 	
HEVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)	✓8k	✓4k
	10-bit, 4:2:0 (P010)	✓8k	✓4k
	8-bit, 4:2:2 (YUY2)	✓4k	
	10-bit, 4:2:2 (Y210)	✓4k	
	Sliding window	✓	✓
	Weight prediction	✓ (explicit)	✓ (explicit)
	Max frame size	✓	✓
Max slice size	✓	✓	
VP9	8-bit, 4:2:0 (NV12)	✓8k	

Codec	Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
	10-bit, 4:2:0 (P010)	✓8k	
	8-bit, 4:4:4 (AYUV)	✓8k	
	10-bit, 4:4:4 (Y410)	✓8k	
	I/P frame	✓	
	Segmentation	✓	
	Multiref	✓	
	Tile support	✓	
	Temporal scalability	✓	
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR 	

Encode Features for 9th Generation Intel® Core™

- Intel® UHD Graphics 630

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Format/Feature	9th Generation Intel® Core™
AVC	8-bit, 4:2:0 (NV12)	✓4k
	Additional inputs (color conversion)	<ul style="list-style-type: none"> • YUY2 • ARGB
	I/P frame	✓
	HRD conformant CBR/VBR	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP

Codec	Format/Feature	9th Generation Intel® Core™
AVC (fixed-function hardware + shader-based)	Intra refresh	✓
	Dynamic intra refresh	✓
	Max frame size	✓
	Adaptive max frame size	✓
	Max slice size	✓
	Weighted prediction	✓ (explicit)
	Lookahead	✓
	8-bit, 4:2:0 (NV12)	✓ 4k
	I/P frame	✓
	B frame	✓
	HRD conformant CBR/VBR	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • AVBR • QVBR • LD • ICQ • VCM • LA • LA_ICQ • LA_EXT • LA_HRD
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP
	Intra refresh	✓
Dynamic intra refresh	✓	
Max frame size	✓	
Adaptive max frame size	✓	
Max slice size	✓	
Weighted prediction	✓	
bpyramid	✓	
Lookahead	✓	
VP8 Encode	8-bit, 4:2:0 (NV12)	✓4k

Codec	Format/Feature	9th Generation Intel® Core™
MPEG2 Encode	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR
	8-bit, 4:2:0 (NV12)	✓2k
	HRD conformant CBR/VBR	✓
MJPEG Encode	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR
	4:2:0 (NV12)	✓16k
	4:2:2 (YUY2)	✓16k
	4:2:2(UYVY)	✓16k
	4:4:4 (AYUV)	✓16k
	ABGR	✓16k
HEVC (fixed-function hardware + shader-based)	Y8	✓16k
	8-bit, 4:2:0 (NV12)	✓4k
	10-bit, 4:2:0 (P010)	✓4k
	Sliding window	✓
	Weight prediction	✓ (explicit)
	Max frame size	✓
	Max slice size	✓

Encode Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Format/Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™
AVC	8-bit, 4:2:0 (NV12)		✓4k	✓4k
	Additional inputs (color conversion)		<ul style="list-style-type: none"> • YUY2 • ARGB 	<ul style="list-style-type: none"> • YUY2 • ARGB
	I/P frame		✓	✓

Codec	Format/ Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™	
AVC (fixed- function hardware + shader-based)	HRD conformant CBR/VBR		✓	✓	
	Specialized BRC modes		<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD 	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD 	
	QP modulation		<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	
	Intra refresh		✓	✓	
	Dynamic intra refresh		✓	✓	
	Max frame size		✓	✓	
	Adaptive max frame size		✓	✓	
	Max slice size			✓	
	Weighted prediction			✓ (explicit)	
	Lookahead			✓	✓
	8-bit, 4:2:0 (NV12)	✓ 4k	✓ 4k	✓ 4k	✓ 4k
	I/P frame	✓	✓	✓	✓
	B frame	✓	✓	✓	✓
	HRD conformant CBR/VBR	✓	✓	✓	✓
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR - VBR • AVBR • QVBR • LD • ICQ • VCM • LA 	<ul style="list-style-type: none"> • CBR • VBR • AVBR • QVBR • LD • ICQ • VCM • LA 	<ul style="list-style-type: none"> • CBR • AVBR • QVBR • LD • ICQ • VCM • LA • LA_ICQ 	

Codec	Format/ Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™
		<ul style="list-style-type: none"> LA_ICQ LA_EXT LA_HRD 	<ul style="list-style-type: none"> LA_ICQ LA_EXT LA_HRD 	<ul style="list-style-type: none"> LA_EXT LA_HRD
	QP modulation	<ul style="list-style-type: none"> ROI DirtyROI MBBRC FracQP 	<ul style="list-style-type: none"> ROI DirtyROI MBBRC FracQP 	<ul style="list-style-type: none"> ROI DirtyROI MBBRC FracQP
	Intra refresh	✓	✓	✓
	Dynamic intra refresh	✓	✓	✓
	Max frame size	✓	✓	✓
	Adaptive max frame size	✓	✓	✓
	Max slice size	✓	✓	✓
	Weighted prediction	✓	✓	✓
	bpyramid	✓	✓	✓
	Lookahead	✓	✓	✓
VP8 Encode	8-bit, 4:2:0 (NV12)			✓4k
	Specialized BRC modes			<ul style="list-style-type: none"> CBR VBR
MPEG2 Encode	8-bit, 4:2:0 (NV12)	✓2k	✓2k	✓2k
	HRD conformant CBR/VBR	✓	✓	✓
	Specialized BRC modes	<ul style="list-style-type: none"> CBR VBR 	<ul style="list-style-type: none"> CBR VBR 	<ul style="list-style-type: none"> CBR VBR
MJPEG Encode	4:2:0 (NV12)		✓16k	✓16k
	4:2:2 (YUY2)		✓16k	✓16k
	4:2:2(UYVY)		✓16k	✓16k
	4:4:4 (AYUV)		✓16k	✓16k
	ABGR		✓16k	✓16k
	Y8		✓16k	✓16k

Codec	Format/ Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™, 8th Generation Intel® Core™
HEVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)		✓4k	✓4k
	10-bit, 4:2:0 (P010)			✓4k
	Sliding window			✓
	Weight prediction			✓ (explicit)
	Max frame size		✓	✓
	Max slice size			✓

Encode Features for other Intel Processors

NOTE If not specified, an encoder is a fixed function hardware-based encoder.

Codec	Format/ Feature	Intel Atom® Processor Series x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
AVC	8-bit, 4:2:0 (NV12)		✓4k	✓4k	✓4k
	Additional inputs (color conversion)		<ul style="list-style-type: none"> • YUY2 • ARGB 	<ul style="list-style-type: none"> • YUY2 • ARGB 	<ul style="list-style-type: none"> • YUY2 • ARGB
	I/P frame		✓	✓	✓
	HRD conformance CBR/VBR		✓	✓	✓

Codec	Format/Feature	Intel Atom® Processor x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
	Specialized BRC modes		<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD 	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD 	<ul style="list-style-type: none"> • CBR • VBR • ICQ • VCM • QVBR • LD
	QP modulation		<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP
	Intra refresh		✓	✓	✓
	Dynamic intra refresh		✓	✓	✓
	Max frame size		✓	✓	✓
	Adaptive max frame size		✓	✓	✓
	Max slice size			✓	✓
	Weighted prediction			✓ (explicit)	✓ (explicit)
	Lookahead		✓	✓	✓
AVC (fixed-function hardware)	8-bit, 4:2:0 (NV12)	✓ 4k	✓ 4k		

Codec	Format/ Feature	Intel Atom® Processor Series x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
e + shader- based)	I/P frame	✓	✓		
	B frame	✓	✓		
	HRD conformant CBR/VBR	✓	✓		
	Specialized BRC modes	<ul style="list-style-type: none"> • CBR • VBR • AVBR • QVBR • LD • ICQ • VCM • LA • LA_ICQ • LA_EXT • LA_HRD 	<ul style="list-style-type: none"> • CBR • VBR • AVBR • QVBR • LD • ICQ • VCM • LA • LA_ICQ • LA_EXT • LA_HRD 		
	QP modulation	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 	<ul style="list-style-type: none"> • ROI • DirtyROI • MBBRC • FracQP 		
	Intra refresh	✓	✓		
	Dynamic intra refresh	✓	✓		
	Max frame size	✓	✓		

Codec	Format/Feature	Intel Atom® Processor x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
	Adaptive max frame size	✓	✓		
	Max slice size	✓	✓		
	Weighted prediction	✓	✓		
	bpyramid	✓	✓		
	Lookahead	✓	✓		
MJPEG Encode	4:2:0 (NV12)		✓16k	✓16k	✓16k
	4:2:2 (YUY2)		✓16k	✓16k	✓16k
	4:2:2 (UYVY)		✓16k	✓16k	✓16k
	4:4:4 (AYUV)		✓16k	✓16k	✓16k
	ABGR		✓16k	✓16k	✓16k
HEVC	Y8		✓16k	✓16k	✓16k
	8-bit, 4:2:0 (NV12)			✓4k	✓4k
	10-bit, 4:2:0 (P010)			✓4k	✓4k

Codec	Format/ Feature	Intel Atom® Processor x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
	8-bit, 4:4:4 (AYUV)			✓4k	✓4k
	10-bit, 4:4:4 (Y410)			✓4k	✓4k
	I frame			✓4k	✓4k
	Low Delay B			✓	✓
	BRC modes			<ul style="list-style-type: none"> • CBR • VBR • QVBR 	<ul style="list-style-type: none"> • CBR • VBR • QVBR
HEVC (fixed-function hardware + shader-based)	8-bit, 4:2:0 (NV12)		✓4k		
	10-bit, 4:2:0 (P010)		✓4k		
	Max frame size		✓		
VP9	8-bit, 4:2:0 (NV12)			✓8k	✓8k
	10-bit, 4:2:0 (P010)			✓8k	✓8k
	8-bit, 4:4:4 (AYUV)			✓8k	✓8k

Codec	Format/Feature	Intel Atom® Processor Series x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
	10-bit, 4:4:4 (Y410)			✓8k	✓8k
	I/P frame			✓	✓
	Segmentation			✓	✓
	Multiframe			✓	✓
	Tile support			✓	✓
	Temporal scalability			✓	✓
	Specialized BRC modes			<ul style="list-style-type: none"> • CBR • VBR 	<ul style="list-style-type: none"> • CBR • VBR

Decode Features

- [Decode Features for Intel® Discrete Graphics](#)
- [Decode Features for 11th and 12th Generation Intel® Core™ Processors](#)
- [Decode Features for 10th Generation Intel® Core™](#)
- [Decode Features for 9th Generation Intel® Core™](#)
- [Decode Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors](#)
- [Decode Features for other Intel Hardware](#)

Decode Features for Intel® Discrete Graphics

Codec	Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
AVC Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k
	Inline scaling	✓Downscaling, 1/8 at most	✓Downscaling, 1/8 at most

Codec	Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
MPEG2 Decode	8-bit, 4:2:0 (NV12)	✓2k	✓2k
VC1 Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k
MJPEG Decode	4:2:0, 8-bit → IMC3	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2H	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2V	✓16k	✓16k
	4:1:1, 8-bit → 411P	✓16k	✓16k
	4:4:4, 8-bit → 4:4:4P	✓16k	✓16k
	4:4:4, 8-bit → RGBP / BGRP	✓16k	✓16k
	4:0:0, 8-bit → 400P	✓16k	✓16k
	4:2:0/4:2:2H (inter) → YUY2 / UYVY	✓16k	✓16k
	4:2:0/4:2:2H/4:2:2V (inter) → NV12	✓16k	✓16k
	400/4:2:0/4:2:2H/ 4:4:4/RGB/BGR (inter) → A8R8G8B8	✓16k	✓16k
	Inline scaling	✓Downscaling, 1/8 at most	✓Downscaling, 1/8 at most
HEVC Decode	8-bit, 4:2:0 (NV12)	✓16k	✓16k
	10-bit, 4:2:0 (P010)	✓16k	✓16k
	12-bit, 4:2:0 (P016)	✓16k	✓16k
	8-bit, 4:2:2 (YUY2)	✓16k (no SCC)	✓16k (no SCC)
	10-bit, 4:2:2 (Y210)	✓16k (no SCC)	✓16k (no SCC)
	12-bit, 4:2:2 (Y216)	✓16k (no SCC)	✓16k (no SCC)
	8-bit, 4:4:4 (AYUV)	✓16k	✓16k
	10-bit, 4:4:4 (Y410)	✓16k	✓16k
	12-bit, 4:4:4 (Y416)	✓16k	✓16k
	Screen Content Coding (SCC)	✓16k	✓16k
	Inline scaling	✓Downscaling, 1/8 at most	✓Downscaling, 1/8 at most

Codec	Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
	Inline Format Converter	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 12-bit, 4:2:2 (Y216) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 12-bit, 4:4:4 (Y416) 8-bit, 4:4:4 (RGB4) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 12-bit, 4:2:2 (Y216) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 12-bit, 4:4:4 (Y416) 8-bit, 4:4:4 (RGB4)
VP9 Decode	8-bit, 4:2:0 (NV12)	✓16k	✓16k
	10-bit, 4:2:0 (P010)	✓16k	✓16k
	12-bit, 4:2:0 (P016)	✓16k	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k	✓16k
	10-bit, 4:4:4 (Y410)	✓16k	✓16k
	12-bit, 4:4:4 (Y416)	✓16k	✓16k
	Dynamic resolution change	✓16k	✓16k
Inline scaling	✓Downscaling, 1/8 at most, Windows only	✓Downscaling, 1/8 at most, Windows only	
	Inline Format Converter, Windows only	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 12-bit, 4:2:2 (Y216) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 12-bit, 4:4:4 (Y416) 8-bit, 4:4:4 (RGB4) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 12-bit, 4:2:2 (Y216) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 12-bit, 4:4:4 (Y416) 8-bit, 4:4:4 (RGB4)
AV1 Decode	8bit, 4:2:0 (NV12)	✓16k	✓16k
	10bit, 4:2:0 (P010)	✓16k	✓16k
	Film Grain	✓16k	✓16k

Decode Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770

- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

Codec	Format/Feature	11th and 12th Generation Intel® Core™
AVC Decode	8-bit, 4:2:0 (NV12)	✓4k
	Inline scaling	✓Downscaling, 1/8 at most
MPEG2 Decode	8-bit, 4:2:0 (NV12)	✓2k
VC1 Decode	8-bit, 4:2:0 (NV12)	✓4k
MJPEG Decode	4:2:0, 8-bit → IMC3	✓16k
	4:2:2, 8-bit → 4:2:2H	✓16k
	4:2:2, 8-bit → 4:2:2V	✓16k
	4:1:1, 8-bit → 411P	✓16k
	4:4:4, 8-bit → 4:4:4P	✓16k
	4:4:4, 8-bit → RGBP / BGRP	✓16k
	4:0:0, 8-bit → 400P	✓16k
	4:2:0/4:2:2H (inter) → YUY2 / UYVY	✓16k
	4:2:0/4:2:2H/4:2:2V (inter) → NV12	✓16k
	400/4:2:0/4:2:2H/4:4:4/RGB/BGR (inter) → A8R8G8B8	✓16k
Inline scaling	✓Downscaling, 1/8 at most	
HEVC Decode	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	12-bit, 4:2:0 (P016)	✓16k
	8-bit, 4:2:2 (YUY2)	✓16k (no SCC)
	10-bit, 4:2:2 (Y210)	✓16k (no SCC)
	12-bit, 4:2:2 (Y216)	✓16k (no SCC)
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k

Codec	Format/Feature	11th and 12th Generation Intel® Core™
	12-bit, 4:4:4 (Y416)	✓16k
	Screen Content Coding (SCC)	✓16k
	Inline scaling	✓Downscaling, 1/8 at most
	Inline Format Converter	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 12-bit, 4:2:2 (Y216) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) • 12-bit, 4:4:4 (Y416) • 8-bit, 4:4:4 (RGB4)
VP9 Decode	8-bit, 4:2:0 (NV12)	✓16k
	10-bit, 4:2:0 (P010)	✓16k
	12-bit, 4:2:0 (P016)	✓16k
	8-bit, 4:4:4 (AYUV)	✓16k
	10-bit, 4:4:4 (Y410)	✓16k
	12-bit, 4:4:4 (Y416)	✓16k
	Dynamic resolution change	✓16k
	Inline scaling	✓Downscaling, 1/8 at most, Windows only
	Inline Format Converter, Windows only	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 12-bit, 4:2:2 (Y216) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) • 12-bit, 4:4:4 (Y416) • 8-bit, 4:4:4 (RGB4)
AV1 Decode	8bit, 4:2:0 (NV12)	✓16k
	10bit, 4:2:0 (P010)	✓16k
	Film Grain	✓16k

Decode Features for 10th Generation Intel® Core™

- Intel® Iris® Plus Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 630

NOTE Processors formerly codenamed [Ice Lake](#) have Intel® Iris® Plus Graphics and Intel® UHD Graphics.

Codec	Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
AVC Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k
	Inline scaling	✓Downscaling, 1/8 at most	✓Downscaling, 1/8 at most
MPEG2 Decode	8-bit, 4:2:0 (NV12)	✓2k	✓2k
VC1 Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k
MJPEG Decode	4:2:0, 8-bit → IMC3	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2H	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2V	✓16k	✓16k
	4:1:1, 8-bit → 411P	✓16k	✓16k
	4:4:4, 8-bit → 4:4:4P	✓16k	✓16k
	4:4:4, 8-bit → RGBP / BGRP	✓16k	✓16k
	4:0:0, 8-bit → 400P	✓16k	✓16k
	4:2:0/4:2:2H (inter) → YUY2 / UYVY	✓16k	✓16k
	4:2:0/4:2:2H/4:2:2V (inter) → NV12	✓16k	✓16k
	400/4:2:0/4:2:2H/4:4:4/RGB/BGR (inter) → A8R8G8B8	✓16k	✓16k
VP8 Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k
HEVC Decode	8-bit, 4:2:0 (NV12)	✓8k	✓8k
	10-bit, 4:2:0 (P010)	✓8k	✓8k
	8-bit, 4:2:2 (YUY2)	✓8k (no SCC)	
	10-bit, 4:2:2 (Y210)	✓8k (no SCC)	
	8-bit, 4:4:4 (AYUV)	✓8k	

Codec	Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
VP9 Decode	10-bit, 4:4:4 (Y410)	✓8k	
	8-bit, 4:2:0 (NV12)	✓8k	✓8k
	10-bit, 4:2:0 (P010)	✓8k	✓8k
	8-bit, 4:4:4 (AYUV)	✓8k	
	10-bit, 4:4:4 (Y410)	✓8k	
	Dynamic resolution change	✓	✓

Decode Features for 9th Generation Intel® Core™

- Intel® UHD Graphics 630

Codec	Format/Feature	9th Generation Intel® Core™
AVC Decode	8-bit, 4:2:0 (NV12)	✓4k
	Inline scaling	✓Downscaling, 1/8 at most
MPEG2 Decode	8-bit, 4:2:0 (NV12)	✓2k
VC1 Decode	8-bit, 4:2:0 (NV12)	✓4k
MJPEG Decode	4:2:0, 8-bit → IMC3	✓16k
	4:2:2, 8-bit → 4:2:2H	✓16k
	4:2:2, 8-bit → 4:2:2V	✓16k
	4:1:1, 8-bit → 411P	✓16k
	4:4:4, 8-bit → 4:4:4P	✓16k
	4:4:4, 8-bit → RGBP / BGRP	✓16k
	4:0:0, 8-bit → 400P	✓16k
	4:2:0/4:2:2H (inter) → YUY2 / UYVY	✓16k
	4:2:0/4:2:2H/4:2:2V (inter) → NV12	✓16k
	400/4:2:0/4:2:2H/4:4:4/RGB/BGR (inter) → A8R8G8B8	✓16k
VP8 Decode	8-bit, 4:2:0 (NV12)	✓4k
HEVC Decode	8-bit, 4:2:0 (NV12)	✓8k
	10-bit, 4:2:0 (P010)	✓8k
VP9 Decode	8-bit, 4:2:0 (NV12)	✓8k
	10-bit, 4:2:0 (P010)	✓8k

Codec	Format/Feature	9th Generation Intel® Core™
	Dynamic resolution change	✓

Decode Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors

Codec	Format/Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™ , 8th Generation Intel® Core™
AVC Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k	✓4k
	Inline scaling		✓Downscaling, 1/8 at most	✓Downscaling, 1/8 at most
MPEG 2 Decode	8-bit, 4:2:0 (NV12)	✓2k	✓2k	✓2k
VC1 Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k	✓4k
MJPE G Decode	4:2:0, 8-bit → IMC3	✓16k	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2H	✓16k	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2V	✓16k	✓16k	✓16k
	4:1:1, 8-bit → 411P	✓16k	✓16k	✓16k
	4:4:4, 8-bit → 4:4:4P	✓16k	✓16k	✓16k
	4:4:4, 8-bit → RGBP / BGRP	✓16k	✓16k	✓16k
	4:0:0, 8-bit → 400P	✓16k	✓16k	✓16k
	4:2:0/4:2:2H (inter) → YUY2 / UYVY	✓16k	✓16k	✓16k
	4:2:0/4:2:2H/4:2:2V (inter) → NV12	✓16k	✓16k	✓16k
	400/4:2:0/4:2:2H/ 4:4:4/RGB/BGR (inter) → A8R8G8B8		✓16k	✓16k
VP8 Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k	✓4k

Codec	Format/Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™ , 8th Generation Intel® Core™
HEVC Decode	8-bit, 4:2:0 (NV12)		✓8k	✓8k
	10-bit, 4:2:0 (P010)			✓8k
VP9 Decode	8-bit, 4:2:0 (NV12)			✓8k
	10-bit, 4:2:0 (P010)			✓8k
	Dynamic resolution change			✓

Decode Features for other Intel Hardware

Decode Features for other Intel Hardware

Codec	Format/Feature	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
AVC Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k	✓4k	✓4k
	Inline scaling		✓Downscaling, 1/8 at most	✓4k	✓4k
MPEG2 Decode	8-bit, 4:2:0 (NV12)	✓2k	✓2k	✓2k	✓2k
VC1 Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k	✓4k	✓4k
MJPEG Decode	4:2:0, 8-bit → IMC3	✓16k	✓16k	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2H	✓16k	✓16k	✓16k	✓16k
	4:2:2, 8-bit → 4:2:2V	✓16k	✓16k	✓16k	✓16k

Codec	Format/Feature	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
	4:1:1, 8-bit → 411P	✓16k	✓16k	✓16k	✓16k
	4:4:4, 8-bit → 4:4:4P	✓16k	✓16k	✓16k	✓16k
	4:4:4, 8-bit → RGBP / BGRP	✓16k	✓16k	✓16k	✓16k
	4:0:0, 8-bit → 400P	✓16k	✓16k	✓16k	✓16k
	4:2:0/4:2:2H (inter) → YUY2 / UYVY	✓16k	✓16k	✓16k	✓16k
	4:2:0/4:2:2H/ 4:2:2V (inter) → NV12	✓16k	✓16k	✓16k	✓16k
	400/4:2:0/4:2:2H/ 4:4:4/RGB/BGR (inter) → A8R8G8B8		✓16k	✓16k	✓16k
VP8 Decode	8-bit, 4:2:0 (NV12)	✓4k	✓4k	✓4k	✓4k
HEVC Decode	8-bit, 4:2:0 (NV12)		✓8k	✓8k	✓8k
	10-bit, 4:2:0 (P010)		✓8k	✓8k	✓8k
	8-bit, 4:2:2 (YUY2)			✓8k (no SCC)	✓8k (no SCC)
	10-bit, 4:2:2 (Y210)			✓8k (no SCC)	✓8k (no SCC)
	8-bit, 4:4:4 (AYUV)			✓8k	✓8k

Codec	Format/Feature	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
VP9 Decode	10-bit, 4:4:4 (Y410)			✓8k	✓8k
	8-bit, 4:2:0 (NV12)		✓4k	✓8k	✓8k
	10-bit, 4:2:0 (P010)			✓8k	✓8k
	8-bit, 4:4:4 (AYUV)			✓8k	✓8k
	10-bit, 4:4:4 (Y410)			✓8k	✓8k
	Dynamic resolution change		✓	✓	✓

Video Processing Features

- [Video Processing Features for Intel® Discrete Graphics](#)
- [Video Processing Features for 11th and 12th Generation Intel® Core™ Processors](#)
- [Video Processing Features for 10th Generation Intel® Core™](#)
- [Video Processing Features for 9th Generation Intel® Core™](#)
- [Video Processing Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors](#)
- [Video Processing Features for other Intel Hardware](#)

Video Processing Features for Intel® Discrete Graphics

Video Processing Features for Intel® Discrete Graphics

VP Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
8-bit, RGB4	✓	✓
8-bit, RGB565	✓ (Linux, input)	✓ (Linux, input)
8-bit, 4:2:0 (NV12)	✓	✓
10-bit, 4:2:0 (P010)	✓	✓
12-bit, 4:2:0 (P016)	✓	✓

VP Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
8-bit, 4:2:2 (YUY2)	✓	✓
10-bit, 4:2:2 (Y210)	✓	✓
8-bit, 4:4:4 (AYUV)	✓	✓
10-bit, 4:4:4 (Y210)	✓	✓
Composition	✓	✓
	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 8-bit, 4:4:4 (RGB4) 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 8-bit, 4:4:4 (RGB4) 10-bit, 4:4:4 (Y410)
Alpha blending	✓	✓
	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 8-bit, RGB4 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 8-bit, RGB4
Deinterlace	✓	✓
	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 8-bit, 4:4:4 (RGB4) 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 8-bit, 4:4:4 (RGB4) 10-bit, 4:4:4 (Y410)
Resize	✓	✓
	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 8-bit, 4:4:4 (RGB4) 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 8-bit, 4:4:4 (RGB4) 10-bit, 4:4:4 (Y410)
Rotate	✓	✓
	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)

VP Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
Denoise	<ul style="list-style-type: none"> • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) <p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) <p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Procamp	<p>✓</p> <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) 	<p>✓</p> <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Crop	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (RGB4) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) 	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Detail	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) 	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Frame Rate Conversion	<p>✓</p> <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) (Linux) • 10-bit, 4:2:2 (Y210) (Linux) • 8-bit, 4:4:4 (AYUV) (Linux) 	<p>✓</p> <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) (Linux) • 10-bit, 4:2:2 (Y210) (Linux) • 8-bit, 4:4:4 (AYUV) (Linux)

VP Format/Feature	Intel® Iris® Xe MAX Graphics	Intel® Arc™ A-Series Graphics
Color Conversion Filter	<ul style="list-style-type: none"> 10-bit, 4:4:4 (Y410) (Linux) ✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 8-bit, 4:4:4 (RGB4) 8-bit, RGB565 (Linux) 	<ul style="list-style-type: none"> 10-bit, 4:4:4 (Y410) (Linux) ✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 12-bit, 4:2:0 (P016) 8-bit, 4:2:2 (YUY2) 10-bit, 4:2:2 (Y210) 8-bit, 4:4:4 (AYUV) 10-bit, 4:4:4 (Y410) 8-bit, 4:4:4 (RGB4) 8-bit, RGB565 (Linux)

Video Processing Features for 11th and 12th Generation Intel® Core™ Processors

12th Generation Intel® Core™ Processors:

- Intel® UHD Graphics 770
- Intel® UHD Graphics 730
- Intel® UHD Graphics 710
- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics

11th Generation Intel® Core™ Processors:

- Intel® Iris® Xe MAX Graphics
- Intel® UHD Graphics
- Intel® UHD Graphics 750

Video Processing Features for 11th and 12th Generation Intel® Core™ Processors

VP Format/Feature	11th and 12th Generation Intel® Core™
8-bit, RGB4	✓
8-bit, RGB565	✓
8-bit, 4:2:0 (NV12)	✓
10-bit, 4:2:0 (P010)	✓
12-bit, 4:2:0 (P016)	✓
8-bit, 4:2:2 (YUY2)	✓
10-bit, 4:2:2 (Y210)	✓
8-bit, 4:4:4 (AYUV)	✓
10-bit, 4:4:4 (Y210)	✓
Composition	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010)

VP Format/Feature	11th and 12th Generation Intel® Core™
	<ul style="list-style-type: none"> • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Alpha blending	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) • 8-bit, RGB4
Deinterlace	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Resize	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Rotate	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Denoise	<p>✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210)

VP Format/Feature	11th and 12th Generation Intel® Core™
Procamp	<ul style="list-style-type: none"> • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) <p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Crop	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (RGB4) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Detail	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Frame Rate Conversion	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) (Linux) • 10-bit, 4:2:2 (Y210) (Linux) • 8-bit, 4:4:4 (AYUV) (Linux) • 10-bit, 4:4:4 (Y410) (Linux)
Color Conversion Filter	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 12-bit, 4:2:0 (P016) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) • 8-bit, 4:4:4 (RGB4) • 8-bit, RGB565 (Linux)

Video Processing Features for 10th Generation Intel® Core™

- Intel® Iris® Plus Graphics

- Intel® UHD Graphics
- Intel® UHD Graphics 630

NOTE Processors formerly codenamed [Ice Lake](#) have Intel® Iris® Plus Graphics and Intel® UHD Graphics.

Video Processing Features for 10th Generation Intel® Core™

VP Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
8-bit, RGB4	✓	✓
8-bit, RGB565	✓ (Linux, input)	
8-bit, 4:2:0 (NV12)	✓	✓
10-bit, 4:2:0 (P010)	✓	✓ (input)
8-bit, 4:2:2 (YUY2)	✓	✓
10-bit, 4:2:2 (Y210)	✓	
8-bit, 4:4:4 (AYUV)	✓	
10-bit, 4:4:4 (Y210)	✓	
Composition	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) (Linux) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) 	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) (Linux) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) (Linux)
Alpha blending	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) 	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, RGB4
Deinterlace	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) 	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2)

VP Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
Resize	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:4:4 (RGB4)
Rotate	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:4:4 (RGB4)
Denoise	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) (Windows) 	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) (Linux)
Procamp	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2)
Crop	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) 	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2)
Detail	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) 	<ul style="list-style-type: none"> ✓ • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2)

VP Format/Feature	10th Generation Intel® Core™ (Formerly Ice Lake)	10th Generation Intel® Core™ (other processors)
Frame Rate Conversion	<ul style="list-style-type: none"> • 10-bit, 4:4:4 (Y410) ✓	✓ <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) (Windows)
Color Conversion Filter	✓ <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) (Linux) • 10-bit, 4:2:2 (Y210) (Linux) • 8-bit, 4:4:4 (AYUV) (Linux) • 10-bit, 4:4:4 (Y410) (Linux) 	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:4:4 (RGB4)

Video Processing Features for 9th Generation Intel® Core™

- Intel® UHD Graphics 630

Video Processing Features for 9th Generation Intel® Core™

VP Format/Feature	9th Generation Intel® Core™
8-bit, RGB4	✓
8-bit, RGB565	✓ (Linux, input)
8-bit, 4:2:0 (NV12)	✓
10-bit, 4:2:0 (P010)	✓
8-bit, 4:2:2 (YUY2)	✓
10-bit, 4:2:2 (Y210)	✓
8-bit, 4:4:4 (AYUV)	✓
10-bit, 4:4:4 (Y210)	✓
Composition	✓ <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) (Linux) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV)

VP Format/Feature	9th Generation Intel® Core™
Alpha blending	<ul style="list-style-type: none"> • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) <p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Deinterlace	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Resize	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Rotate	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Denoise	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) (Windows)
Procamp	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2)

VP Format/Feature	9th Generation Intel® Core™
Crop	<ul style="list-style-type: none"> • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410) <p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410)
Detail	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 10-bit, 4:4:4 (Y410)
Frame Rate Conversion	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) (Linux) • 10-bit, 4:2:2 (Y210) (Linux) • 8-bit, 4:4:4 (AYUV) (Linux) • 10-bit, 4:4:4 (Y410) (Linux)
Color Conversion Filter	<p style="text-align: center;">✓</p> <ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 10-bit, 4:2:0 (P010) • 8-bit, 4:2:2 (YUY2) • 10-bit, 4:2:2 (Y210) • 8-bit, 4:4:4 (AYUV) • 8-bit, 4:4:4 (RGB4) • 10-bit, 4:4:4 (Y410) • 8-bit, RGB565 (Linux)

Video Processing Features for 5th, 6th, 7th, 8th Generation Intel® Core™ Processors

Video Processing Features for 5th, 6th, 7th, 8th Generation Intel® Core™

VP Format/Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™ , 8th Generation Intel® Core™
8-bit, RGB4	✓	✓	✓
8-bit, 4:2:0 (NV12)	✓	✓	✓
10-bit, 4:2:0 (P010)			✓(input)

VP Format/Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™ , 8th Generation Intel® Core™
8-bit, 4:2:2 (YUY2)	✓	✓	✓
Composition	✓ <ul style="list-style-type: none"> 8 bit, 4:2:0 (NV12) 8 bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) (Linux) 8-bit, 4:2:2 (YUY2) (Linux) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) (Linux) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)
Alpha blending	✓ <ul style="list-style-type: none"> 8 bit, 4:2:0 (NV12) 8 bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)
Deinterlace	✓ <ul style="list-style-type: none"> 8 bit, 4:2:0 (NV12) 8 bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)
Resize	✓ <ul style="list-style-type: none"> 8 bit, 4:2:0 (NV12) 8 bit, 4:4:4 (RGB4) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8 bit, 4:4:4 (RGB4) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)
Rotate	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8 bit, 4:4:4 (RGB4) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)
Denoise	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) (Linux) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2) (Linux)
Procamp	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)
Crop	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)
Detail	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010)

VP Format/Feature	5th Generation Intel® Core™	6th Generation Intel® Core™	7th Generation Intel® Core™ , 8th Generation Intel® Core™
Frame Rate Conversion			<ul style="list-style-type: none"> 8-bit, 4:2:2 (YUY2) ✓ 10-bit, 4:2:0 (P010) (Windows)
Color Conversion Filter	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 10-bit, 4:2:0 (P010) 8-bit, 4:2:2 (YUY2)

Video Processing Features for other Intel Hardware

Video Processing Features for other Intel Hardware

VP Format/ Feature	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
8-bit, RGB4	✓	✓		
8-bit, 4:2:0 (NV12)	✓	✓		
8-bit, 4:2:2 (YUY2)	✓	✓		
Composition	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) (Linux) 8-bit, 4:2:2 (YUY2) (Linux) 		
Alpha blending	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 		
Deinterlace	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 	✓ <ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 		

VP Format/ Feature	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
Resize	<ul style="list-style-type: none"> 8-bit, 4:2:2 (YUY2) 	<ul style="list-style-type: none"> 8-bit, 4:2:2 (YUY2) 		
Rotate	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:4:4 (RGB4) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:4:4 (RGB4) 		
Denoise	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) (Linux) 		
Procamp	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 		
Crop	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 		
Detail	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 	<ul style="list-style-type: none"> 8-bit, 4:2:0 (NV12) 8-bit, 4:2:2 (YUY2) 		
Color Conversion Filter	<ul style="list-style-type: none"> ✓ 	<ul style="list-style-type: none"> ✓ 		

VP Format/ Feature	Intel Atom® Processors x5 and x7 Processor Series	Intel Atom® Processor E3900 Series, and Intel® Pentium® and Celeron® and Processor N- and J-Series	Intel® Core™ Processors with Intel® Hybrid Technology	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors for Internet of Things (IoT) Applications
	<ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 8-bit, 4:2:2 (YUY2) 	<ul style="list-style-type: none"> • 8-bit, 4:2:0 (NV12) • 8-bit, 4:2:2 (YUY2) 		

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