

Managing DSPs

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The SBC Core provides a wide range of high density digital signal processor (DSP) modules and a comprehensive set of converged, voice, video, vocoder, fax and data media processing functions. This section provides guidance regarding when it is necessary to use DSPs on SBC 5000 series devices (5100, 5110, 5200, 5210) and the SBC 7000 device according to protocol usage.

Applications/Features Requiring DSPs

DSPs are required for the following features. For licensing details, refer to "SBC Protocol Licenses" section on the page [Managing SBC Licenses](#).

Table 1: Applications/Features Requiring DSPs

Feature	Examples
Codec interworking	<p>DSPs are needed when applying codec interworking. Below are but a few examples.</p> <ul style="list-style-type: none">• G711 to G729• G722 to AMR-WB• T38 fax to G711 <div data-bbox="634 1163 1344 1350"><p> See Supported Codecs and Transcoding for codec details.</p><p>See DSP Channel Densities for SBC 5000 and 7000 Series for DSP density details.</p></div>
Fax and Modem Tone detections	<p>Fax or Modem Tone detection can trigger modifications to calls in following scenarios, for example.</p> <ul style="list-style-type: none">• Calls to T.38 pass-through• Calls to G.711 pass-through• G.711 to T.38 transcoded <div data-bbox="634 1600 1344 1738"><p> These modifications can also be triggered via re-INVITEs triggered by remote Gateways that detect the tones.</p></div>
Interworking in-band DTMF to Out-Of-Band (OOB) or RFC 2833/4733 DTMF events	
Detecting in-band DTMF for dial string applications	

When the basic codec is the same on both legs	<p>DSPs are needed for:</p> <ol style="list-style-type: none"> 1. Packet Size interworking – 10 ms G.711 interworked to 20 ms G.711 2. Silence Suppression interworking 3. RFC 2833/4733 Payload conversion – G.729 with DTMF PT 101 interworked to G.729 with DTMF PT 102 4. Codec-specific attribute interworking – interworking AMR-WB with mode-set 1, 2, 3 with AMR-WB using mode-set 2, 3, 4, 5. 5. Interworking T.38 V0 to T.38 V3 6. Codec payload type changes
Playing compressed announcements	
Ringback tones	
Packet Service Profile option 'transcode only'	DSPs are needed when PSP Packet To Packet Control object is set to 'Transcode only'.

 The term "pass-through" refers to the case when the SBC relays the media end-to-end and no DSPs are used.

Applications/Features not Requiring DSPs

DSPs are not required for the following features:

- RFC 2833/4733 to OOB interworking
- SRTP
- RTCP (although RTCP termination is only recommended for transcoded calls)
- Media policing
- Signaling (Call and Registration) traffic policing
- NAT traversal including ICE
- RFC 2833/4733 based dial string applications
- G.711 announcements

